HIDEOUT, UTAH TOWN COUNCIL
REGULAR MEETING AND PUBLIC HEARINGS
November 13, 2025
Amended Agenda

PUBLIC NOTICE IS HEREBY GIVEN that the Town Council of Hideout, Utah will hold its Regular Meeting and Public Hearings electronically via Zoom and in person at Hideout Town Hall, located at 10860 North Hideout Trail, Hideout Utah for the purposes and at the times as described below on Thursday, November 13, 2025.

All public meetings are available via ZOOM conference call and YouTube Live.
Interested parties may join by dialing in as follows:

Zoom Meeting URL: https://zoom.us/j/4356594739
To join by telephone dial: US: +1 408 638 0986 **Meeting ID:** 435 659 4739
YouTube Live Channel: https://www.youtube.com/channel/UCKdWnJad-WwvcAK75QjRb1w/

Regular Meeting and Public Hearings
6:00 PM

I. Call to Order and Pledge of Allegiance

II. Roll Call

III. Public Input - Floor open for any attendee to speak on items not listed on the agenda

IV. Agenda Items

1. MIDA discussion with Wasatch County manager Dustin Grabau

V. Public Hearings

1. Discussion and possible recommendation regarding an amendment of the Official Town of Hideout Zoning Map to rezone parcel 00-0020-8164 (Wildhorse Development) from Mountain (M) Zone to Neighborhood Mixed Use (NMU). This proposed development is located on the northern side of SR-248, between the Woolf property and the Klaim Subdivision.
2. Discussion and possible approval of a Master Development Agreement (MDA) for the Wildhorse Development.
3. Discussion and possible action on the Final Subdivision Plat for Shoreline Phase 4, located within the Town of Hideout, Utah.

VI. Agenda Items *cont.*

1. Discussion and Possible Approval of Resolution 2025-R-XX Appointing a City Recorder
2. Discussion of Planning Commission Rules and Regulations.
3. Consideration and Possible Adoption of Ordinance 2025-O-XX, Amending Hideout Municipal Code 5.04.075 to Align Construction Hours with Section 10.04.32.
4. Discussion and possible appointment of a representative of Hideout to engage in discussions regarding the Comprehensive Emergency Management Plan (CEMP).
5. Discussion regarding egress into Jordanelle State Park - *Presented by Council Member Gunn*

6. Consideration of Ordinance NO. 2025-XX amending Hideout Municipal Code Section 1.10.050 to establish agenda placement and submission and distribution deadlines for council meeting materials - *Presented by Council Member Gunn*

7. Discussion and possible adoption of Resolution 2025-R-XX Appointing a Chief Administrative Officer and Records Officer(s) in Compliance with the Government Data Privacy Act (GDPA)

8. Discussion and possible approval of interlocal agreements with Hideout Local District 1 relating to infrastructure control and maintenance, non-opposition to proposed district boundary expansion, and provision of billing services

VII. Committee Updates

1. Planning Commission - *Thomas Eddington, Town Planner*
2. Design Review Committee - *Thomas Eddington, Town Planner*
3. Wildfire Committee - *Council Member Gunn*
4. Economic Development Committee - *Council Member Cronin*
5. Parks, Open Space and Trails (POST) Committee - *Council Member Baier*
6. Transportation Committee - *Council Member Haselton*

VIII. Approval of Council Minutes

IX. Follow up of Items from Approved Minutes

X. Closed Executive Session - Discussion of pending or reasonably imminent litigation, personnel matters, deployment of security personnel, devices or systems, and/or sale or acquisition of real property as needed

XI. Meeting Adjournment

Pursuant to the Americans with Disabilities Act, individuals needing special accommodations during the meeting should notify the Mayor or City Recorder at 435-659-4739 at least 24 hours prior to the meeting.

HIDEOUT TOWN COUNCIL
10860 N. Hideout Trail
Hideout, UT 84036
Phone: 435-659-4739

Posted 11/12/2025

File Attachments for Item:

1. Discussion and possible recommendation regarding an amendment of the Official Town of Hideout Zoning Map to rezone parcel 00-0020-8164 (Wildhorse Development) from Mountain (M) Zone to Neighborhood Mixed Use (NMU). This proposed development is located on the northern side of SR-248, between the Woolf property and the Klaim Subdivision.

WILDHORSE

Elevating Everyday Living in Hideout

HIDEOUT
UTAH

Development Vision

WILDHORSE

OBJECTIVES

- Transform & Enriching the Fabric of Hideout
- Respond To Residents' Desire For Service Amenities
- Meaningfully Increase Town Revenue Generation
- Align with Hideout General Plan

DESIGN INTENTION

- Preserve Outstanding Views
- Cultivate an Inviting Neighborhood Atmosphere
- Build a Connected Community
- Preserve Native Open Space Area
- Compliment Hideout Attractiveness
- Promote Safety and Sustainability
- Housing Diversity
- Embrace Town Culture

Hideout Goals & Wildhorse Compliance

WILDHORSE

General Plan Vision

✓ 1 preserve outstanding views

✓ 2 cultivate an inviting neighborhood atmosphere

✓ 3 build a connected community

April 17, Staff Report

3.4.1 Hideout's land use goals are to:

1. Preserve the viewsheds, green space, and unique topography by updating and enforcing a zoning code that reflects Hideout's Community Vision.

2. Maintain the unique character of Hideout by managing intensity of land use and promoting a mix of residential and commercial uses appropriate for the community.

4.5.1 Hideout's housing goals are to:

1. Create an inviting neighborhood atmosphere by implementing design standards to coordinate the aesthetic and cohesiveness of the built environment.

2. Encourage a balanced mix of housing types to provide desirable options for current and potential residents.

5.4.1 Hideout's economic development goals are to:

1. Increase the livability of Hideout by encouraging appropriate commercial uses to serve resident needs.

2. Coordinate with local developers to enhance public gathering spaces and community connectivity.

3. Encourage commercial uses that are financially beneficial to the Town to improve resident quality of life and generate revenue to expand and maintain public infrastructure.

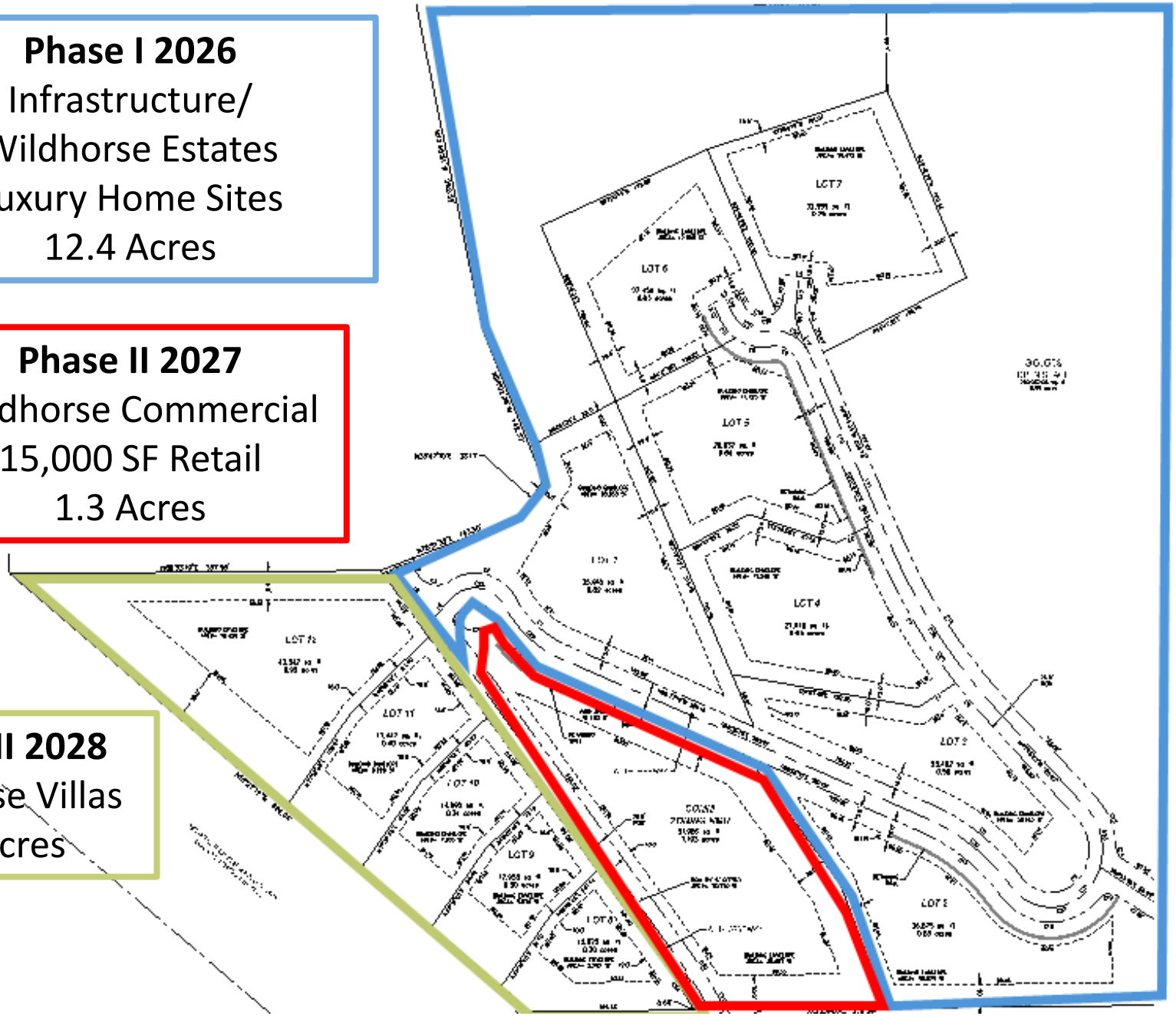
Development Phasing

WILDHORSE

Phase I 2026
Infrastructure/
Wildhorse Estates
Luxury Home Sites
12.4 Acres

Phase II 2027
Wildhorse Commercial
15,000 SF Retail
1.3 Acres

Phase III 2028
Wildhorse Villas
2.3 Acres



Housing

WILDHORSE

Wildhorse Estates

7 Single Family Lots

.5 to .75 acre

Wildhorse Village

Wildhorse Villas

5 Home Lots

2.3 acres

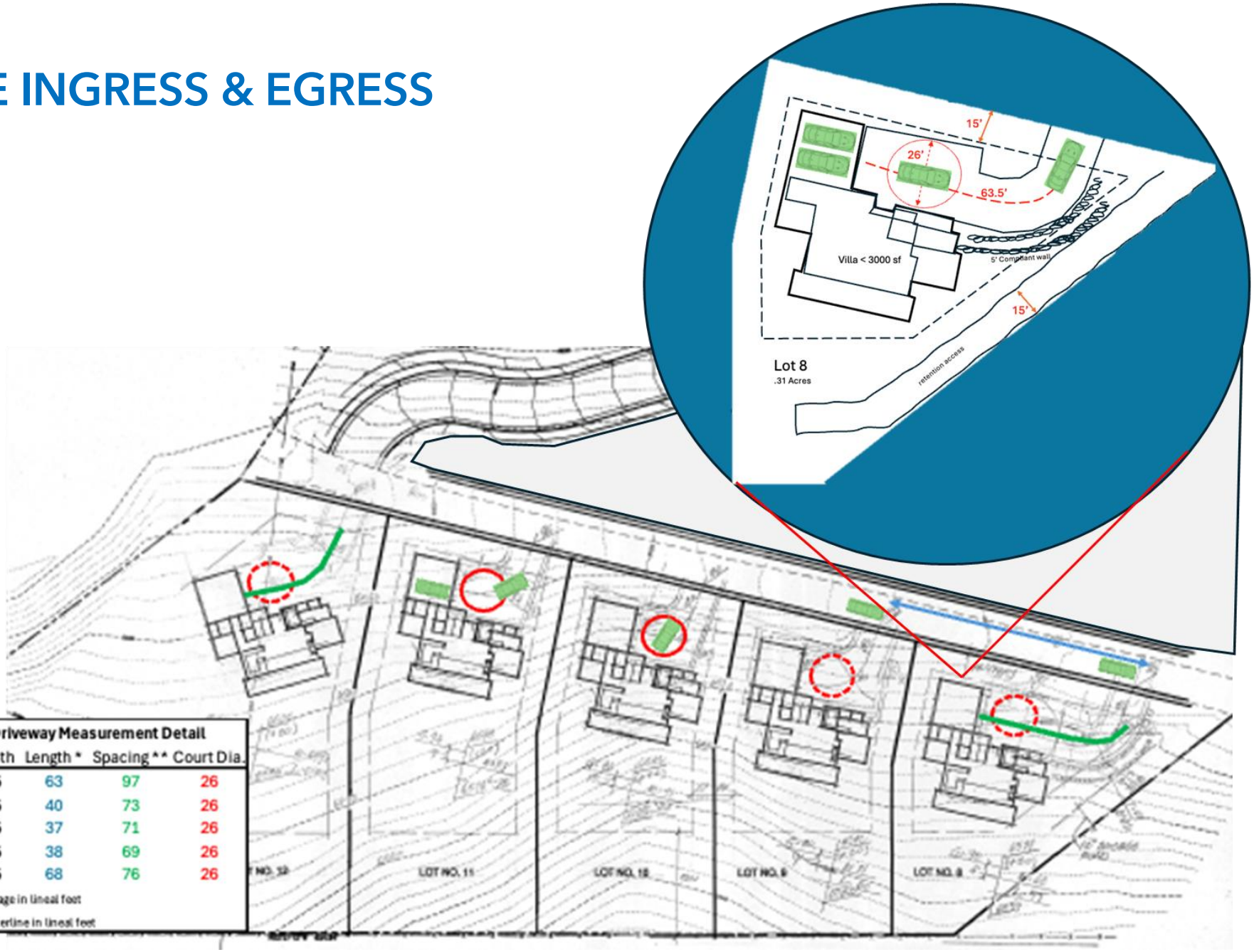
Home Site Features

- Unobstructed Views
- HOA Design Review
- Height per Code
- Two Car Garages
- Wide Motor Court
- Open Space +/- 35 %

Wildhorse Villa Home Sites

WILDHORSE

SAFE INGRESS & EGRESS



Villa Driveway Measurement Detail

Lot No.	Width	Length *	Spacing **	Court Dia.
8	15	63	97	26
9	15	40	73	26
10	15	37	71	26
11	15	38	69	26
12	15	68	76	26

k to garage in lineal feet

en centerline in lineal feet

Neighborhood Amenity

WILDHORSE

WILDHORSE VILLAGE

Levels	2 Story
Rentable SF	15,000
Terrace SF	2,000
Accessibility	ADA Elevator
Parking	48 Spaces
Tenants	Restaurant/Bar/Specialty Grocer

Wildhorse Village

WILDHORSE

***Wildhorse Village** is about creating a place where neighbors connect, families gather, and Hideout shines as a community.*

Artisan Café & Bakery – The perfect neighborhood café to start your day. Grab your morning latte, meet a friend for breakfast, or linger over a pastry while taking in the views. A true neighborhood gathering place, right here in Hideout.

Signature Restaurant – A place where rustic charm meets elevated dining. Expect chef-driven menus featuring fresh, seasonal ingredients served in a warm, inviting atmosphere. Perfect for a date night, family dinner, or a celebratory evening close to home.

Gourmet Market & Deli – A thoughtfully curated market featuring the best of Utah and beyond. From farm-fresh produce and locally raised meats to wild-caught seafood and artisanal cheeses, every product is selected with care. Stop in for a chef-crafted deli sandwich, pick up lunch for a day on the lake, gather ingredients for dinner, or discover something new to bring home.

Capital Investment in Town

WILDHORSE

Infrastructure	**$ 5,330,900**
Commercial	**$ 9,720,000**
Total Investment	**$ 15,050,900**

Town of Hideout Benefit

WILDHORSE

ECONOMIC / REVENUE

Retail Sales Tax	$ 1,478,846
Property Tax	$ 161,725
Energy Utility (gas/electric)	$ 22,016
Total Derived from Proposed Development	$ 1,662,587
Total Revenue Over 20 Years	$ 3,768,283
Annual Revenue On Average	**$ 188,414**

Team – Experienced/Local Expertise

WILDHORSE

Tim & Diane Schoen
Developer
schoen@wildhorsepc.com

Development ADVISORS

Jerry Crylen
Development Manager
Crylenjc@me.com

Rick Otto
Principal
Otto Walker Architects
Residential Estates

Stantec

Tom Longhi / Kurt Basford
Commercial Architects
Tom.Longhi@stantec.com

COLUMBIA CAPITAL
MUNICIPAL ADVISORS

Jeff White
Managing Partner
Public Finance Consultant

MULHOLLAND
DEVELOPMENT SOLUTIONS

Kristian Mulholland
President
Civil Engineering

AGEC
Applied GeoTech

Scott Anderson
Principal
Geotech Engineering

WILDHORSE

Q & A

HANSEN ALLEN & LUCE inc
ENGINEERS

SALT LAKE AREA OFFICE
859 W South Jordan Pkwy, Ste 200
South Jordan, Utah 84095
Phone: (801) 566-5599
www.HALengineers.com

Town of Hideout
Town Council Meeting

October 2, 2025

RECOMMENDATION

Note that these comments are based on a concept plan and not final drawings.

I recommend that the Town Council require the following conditions on any action:

1. A Slope Map is part of the package, but it is not included. The applicant's engineer-of-record shall seal (stamp, date, sign) the slope map because it is a final document on which decisions will be made.
2. All streets meet current Town Standards.
3. The building setback on the west side of Woolf Road shall be 20 feet.
4. As noted on the Concept Plan, public access and snow storage easements shall be included with the pertinent public utility easements.
5. A jersey barrier, or an equivalent pedestrian safety barrier, shall be used on the west side of the street going up the hill. It can be removed temporarily for public utility maintenance and can serve as a pedestrian refuge. Barrier height shall be designed to comply with the Building Code.
6. Resolve the boundary discrepancy with Klaim in the vicinity of the retaining wall at the entrance to Klaim.
7. Remove the power line through Lot 12 and install a power pole on the Woolf property at the end of Woolf Road.

8. Obtain a permit from UDOT to discharge stormwater into their right-of-way.
   a. Connect storm drain system to the orange line in the photo above. The connection from the UDOT culvert to the orange pipe must be designed pursuant to Town Standards.
   b. Evaluate the orange pipe, for the Town Engineer's review, to ensure that connections, sizes, materials, and slopes meet engineering standards.
   c. Make necessary improvements based on the Town Engineer's feedback.
9. Add these notes to the conceptual plans:
   a. The feasibility of lots is unknown where storm drainage detention and retention are employed. Lot feasibility will be determined at final design.
   b. Fire hydrant spacing shall be determined by Wasatch Fire District at final design.
   c. Where public storm water drains onto private property, an easement shall be granted to the Town establishing that the private property owner accepts the drainage as theirs and releases and indemnifies the Town from any potential liability associated with it.
   d. Town Code 10.08.18.D – "The Town Engineer shall determine the most appropriate engineering system and materials for retaining walls located within public right-of-way and those located outside public right-of-way that support a public road."

Respectfully,
HANSEN, ALLEN & LUCE, INC.

Dennis Pay, P.E.
Town Engineer

TOWN OF HIDEOUT

ORDINANCE #2025 – O-_____

AN ORDINANCE AMENDING THE OFFICIAL ZONING MAP FOR THE TOWN OF HIDEOUT FOR PARCEL NO. 00-0020-8164 FROM MOUNTAIN (M) ZONE TO NEIGHBORHOOD MIXED USE (NMU),

WHEREAS, the owners of property consisting of approximately 15.19 acres, and identified as Assessor's Parcel Number 00-0020-8164 have submitted an application to rezone a portion that property from its current zoning designation of Mountain (M) zone to Neighborhood Mixed Use (NMU).

WHEREAS, Developers is proposing a project which will include a restaurant and retail spaces along with residential development;

WHEREAS, zoning amendments must comply with the General Plan;

WHEREAS, there is a Development Agreement being proposed;

WHEREAS, the approval of this zone amendment is contingent on the conditions of the Development Agreement being met;

WHEREAS, the Hideout Planning Commission held public hearing on September 18, 2025, and forwarded a recommendation to the Town Council;

WHEREAS, the Hideout Town Council held public hearings and reviewed the Zoning Map Amendment on October 9, 2025 and November 13, 2025.

WHEREAS, there is good cause and it is in the best interest of the Town of Hideout, Utah to approve the Amendment to the Zoning Map

WHEREAS, as a condition of this Ordinance being effective, a Development Agreement will have to be executed prior to December 15, 2025, and a condition of that Development Agreement will be that the density related to the Project will not exceed 12 residential units and 6 commercial units.

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF HIDEOUT, UTAH, THAT:

Section 1. Rezone. That certain property located at Parcel Number 00-0020-8164, and more particularly described on Exhibit A, attached hereto and incorporated herein by reference, a portion of which is hereby rezoned from its current zoning designation of M to NMU.

Section 2. Zoning Map Amendment. The Zoning Map of the Town of Hideout is hereby amended to reflect the rezoning referenced in Paragraph 1, above.

Section 3. Subdivision Condition. This Ordinance is specifically subject to and conditional upon the following:

(a) A Subdivision Plat for the property described in Exhibit A must be approved by the Town within 12 months of the date of this Ordinance. In the event a Subdivision is not approved, the zoning designation of the property shall revert to M.

(b) The Phasing Plan in the Development Agreement must be adhered to and if the commercial is not completed by December 31, 2029, the zoning designation shall revert to M.

Section 4. Severability. If any section, part or provision of this Ordinance is held invalid or unenforceable, such invalidity or unenforceability shall not affect any other portion of this Ordinance, and all sections, parts and provisions of this Ordinance shall be severable.

Section 5. Effective Date. This Ordinance shall take effect upon the publication or posting.

PASSED AND APPROVED this day of _____, 2025.

By:_____

Ralph Severini, Mayor

[SEAL]

ATTEST:

_____

_____, Recorder for Hideout

integrated planning & design

Staff Report for the Wildhorse Development – Rezone & Associated MDA

To: Mayor Ralph Severini
Town Councilmembers

From: Thomas Eddington Jr., AICP, PLA
Town Planner

Re: Wildhorse Rezoning Request

Date: Prepared for the November 13, 2025 Town Council Meeting

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Submittals: *Updated MDA (via email on November 7, 2025) and prior submittals are included as Exhibits to the MDA (the Design Guidelines must be updated as well as the Zoning Map exhibit).*

Background

At the September 18, 2025 Planning Commission meeting, the Planning Commission forwarded two favorable recommendations to the Town Council – for the rezoning and the MDA.

The Town Council held a public hearing on October 9, 2025 and requested that the Applicant coordinate MDA revisions and updates to the Exhibits with Staff.

At this meeting, the Town Council should review the recommended rezoning and updated Master Development Agreement (MDA), with attachments (the Design Guidelines must be updated as well as the Zoning Map exhibit).

Site Characteristics

Total Acres of Site: 15.12 Acres

Current Zoning: Mountain (M) – single-family residential uses allowed

Allowed Density: One (1) single-family dwelling unit per acre. With the current zoning, due to the slopes, the site could support approximately 5-6 single family lots.

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Proposed Concept

Proposed Uses: Seven (7) single-family dwelling units

Five (5) "villas" (detached single-family dwelling with a maximum of 3,000 gross square feet)

A commercial building with restaurant with a bar/pub and a market with options for a coffee shop, wellness center, a kitchen, etc. The sizes of each space have not been provided.

Total Square Feet: +/- 15,000 SF of commercial space.

Proposed Zoning Change

Area to be Rezoned: 1.08 Acres

Proposed Zoning: Neighborhood Mixed Use (NMU)

Site Location (proposed site in red)

Discussion Items

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- The Planning Commission recommended no more than two entrances off Gray Woolf Road. The Applicant is requesting five individual driveways.

- Staff recommends locking in Levels of Service (LOS) for the water vs. changing this in the future.

- Exhibit G includes a proposed phasing schedule and timing parameters for the construction of the commercial development. The Town Council should discuss this schedule and minimum requirements for the completion of the commercial development. Staff recommends having guardrails in terms of the timing for the construction of the commercial development. Perhaps a date certain for completion of the commercial development by March 31, 2029.

- The MDA includes several exceptions to the Zoning Ordinance. These are detailed in Section 1.3.1 of the attached MDA.

Conditions of Approval

All Conditions of Approval have been incorporated into the body of the MDA (Section 1.5).

Recommendation

The Town Council should review the attached MDA, and associated exhibits and take one of the following actions on the Wildhorse Development applications for a rezone and a Master Development Agreement (MDA):

1. Approve the Master Development Agreement and Rezone Ordinance.
2. Approve the Master Development Agreement and Rezone Ordinance with conditions.
3. Deny the Master Development Agreement and Rezone Ordinance.

Exhibits:

1. MDA and associated Exhibits

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File Attachments for Item:

2. Discussion and possible approval of a Master Development Agreement (MDA) for the Wildhorse Development.

RESOLUTION NO. 2025-R-XX

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF HIDEOUT, UTAH, AUTHORIZING THE TOWN TO ENTER INTO AND EXECUTE A DEVELOPMENT AGREEMENT WITH GRAND SUMMIT POINTE, LLC FOR THE WILDHORSE PROJECT CONSISTING OF APPROXIMATELY 15.19 ACRES, LOCATED ON PARCEL NO. 11-0020-8164, HIDEOUT, WASATCH COUNTY, UTAH

WHEREAS, the Town Council is authorized by Utah Code Ann. §§ 10-9a-102 and 10-9a-532 to enact ordinances, resolutions, and rules and enter into other forms of land use controls and development agreements as necessary and appropriate for the use and development of land within the Town of Hideout (Town); and

WHEREAS, the Hideout Municipal Code regulates Development Agreements in Chapter 11.08; and

WHEREAS, GRAND SUMMIT POINTE, LLC (the "Developer") owns certain real property located at or about XXX E. State Road 248, Hideout, Wasatch County, Utah (the "Property") and more particularly described in the Development Agreement attached hereto as Exhibit A; and

WHEREAS, the Developer desires to develop the Property as a residential subdivision with a commercial building (the "Project"); and

WHEREAS, the an application for a zoning map amendment has been submitted to the Town for review and consideration to amend the Hideout Town Zoning Map related to the Property which is located in the Mountain Zone ("M") (residential) and the Developer is seeking a rezone a portion of the property to ~~a combination of:~~ Neighborhood Mixed Use ("NMU")~~;~~; and

WHEREAS, the Developer and the have negotiated the terms and conditions for the development of the Property, which are set forth in the Development Agreement; and

WHEREAS, the Hideout Town Planning Commission held a public hearing on XXXX to consider the proposed Development Agreement and has forwarded a recommendation to the Council; and

WHEREAS, the Council held a public hearing on XXXX to consider the Development Agreement, attached as Exhibit A; and

WHEREAS, the Council finds that the Development Agreement is consistent with the goals, objectives, and policies of the General Plan and promotes the health, safety, and welfare of the community; and

WHEREAS, the Council further finds that the Development Agreement adequately addresses the commitments of the Developer and provides a clear and predictable framework for the Project's development; and

WHEREAS, the Developer has voluntarily agreed to the terms of the Development Agreement, including all obligations and conditions therein.

NOW, THEREFORE, BE IT RESOLVED by the Town Council of the Town of Hideout as follows:

SECTION 1. APPROVAL. The Development Agreement, attached hereto and incorporated by this reference as Exhibit A, is hereby approved.

SECTION 2. AUTHORIZATION. The Mayor is hereby authorized to execute the Development Agreement on behalf of the Town of Hideout.

SECTION 3. RECORDING. Upon execution, the Development Agreement shall be recorded in the official records of the Wasatch County Recorder's Office.

SECTION 4. EFFECTIVE DATE. This resolution shall take effect immediately upon its passage and adoption.

PASSED AND ADOPTED by the Town of Hideout, Utah, this ___ day of _____, 2025.

TOWN OF HIDEOUT:

_____
Ralph Severini, Mayor

ATTEST:

_____

_____, -Recorder for Hideout

DRAFT

DEVELOPMENT AGREEMENT
FOR
WILDHORSE
LOCATED ON PARCEL NO. 00-0020-8164 IN THE TOWN OF HIDEOUT,
WASATCH COUNTY, UTAH

This Development Agreement (this "Agreement") is entered into as of this _____ day of _____, 2025, by and between Grand Summit Pointe, LLC, a Delaware limited liability company ("Developer"), as the owner and developer of certain real property located in Hideout, Wasatch County, Utah, on which Developer proposes the development of a project known as the Wildhorse, and the Town of Hideout, a Town and political subdivision of the State of Utah ("Hideout"), by and through its Town Council. Hideout and Developer are hereinafter collectively referred to as "Parties."

R E C I T A L S

A. Developer is the owner of a single parcel of certain real property located at _____, Hideout, Wasatch County, Utah, consisting of approximately 15.19 acres, and identified as Assessor's Parcel Number(s) 00-0020-8164 with a legal description which is attached hereto as Exhibit A, incorporated herein by this reference, and which real property is depicted on the concept plan attached hereto as Exhibit C and incorporated herein by reference (the "Property").

Commented [TE1]: I corrected the Exhibit lettering throughout the document

B. Hideout, acting pursuant to (1) its authority under Utah Code Annotated 10-9a-102(2) and 10-9a-532, and (2) the Hideout Municipal Code (the "HMC"), and in furtherance of its land use policies, goals, objectives, ordinances, resolutions, and regulations, has made certain determinations with respect to the proposed development of the Property and in exercise of its legislative discretion has elected to enter into this Agreement.

C. Hideout allows for Development Agreements under HMC Section 11.08.04 and the parties agree that this Agreement satisfies those requirements. Additionally, Utah State Code 10-9a-532 regulates Development Agreements and the parties agree that this Agreement satisfies the requirements of that section.

D. The Property is located in the Mountain Residential Zone ("M Zone") and the Developer is seeking a rezone of a portion of the property to Neighborhood Mixed Use ("NMU") Zone.

E. The Developer and Hideout acknowledge that the development and improvement of the Property pursuant to this Agreement will provide certainty and be useful to the Developer and to Hideout in ongoing and future dealings and relations among the Parties.

F. Developer and Hideout desire to enter voluntarily into this Agreement which sets forth the process and standards whereby Developer may develop the Project.

G. Hideout has determined that the proposed development contains features which advance the policies goals and objectives of the Hideout General Plan, preserve and maintain the open and sustainable atmosphere desired by the citizens of Hideout, and will result in planning and economic benefits to Hideout and its citizens.

H. The additional density requested as part of the development will cause impacts to the Town of Hideout.

I. Developer has previously received approval of its "Master Concept Plan" as shown by Exhibit C. This Master Concept Plan gives guidance to the Applicant to assist in meeting the requirements and constraints for Subdivision development within the Town of Hideout. It does not vest any particular layout or density if the site does not support it, except as otherwise provided by this Agreement or Utah law.

J. Following a lawfully advertised public hearing, and a recommendation from the Planning Commission, Hideout, acting pursuant to its authority under Utah Code Ann., Section 10-9a-101, *et seq*., and in furtherance of its land use policies, goals, objectives, ordinances, resolutions, and regulations, has made certain determinations with respect to the proposed Project, and, in the exercise of its legislative discretion, has elected to approve this Agreement.

K. Developer shall have the vested right to develop a maximum of seven single-family lots and five single-family dwelling units of up to 3,000 square feet each (the "Villas") on the Property in the layout conceptually illustrated in Exhibit C and with approximately 15,000 (no less than 12,000 square feet and no more than 16,000 square feet) square feet of free-standing commercial development (the "Project"). The maximum density is based on the ability to comply with applicable standards, ordinances and regulations. No additional density will be permitted in the Project unless it is granted under an amendment to this Agreement. All such development shall comply with the HMC unless expressly stated otherwise herein. Final approval for the layout shall be submitted for Preliminary and Final Subdivision review pursuant to the process governed by the HMC.

Commented [TE2]: TE cleaned up this language

L. Hideout has determined that, subject to the terms and conditions of this Agreement, the Project is compliant with all applicable provisions of the HMC as clarified or modified by this Agreement. Hideout has also found that the Project is consistent with the purpose and intent of all relevant provisions of the HMC and Utah Code.

M. This Agreement shall only be valid upon approval of such by the Hideout Council (the "Town Council"), pursuant to Resolution R-Click or tap here to enter text., a copy of which is attached as Exhibit I;

N. The Developer acknowledge that the terms of this Agreement shall be enforceable and the rights of the Developer relative to the Property shall vest only if the Town Council, in its sole legislative discretion, approves a zone change for a portion of the Property currently zoned as Mountain (M) residential to a zone designated as Neighborhood Mixed Use (NMU).

O. Under Ordinance 2025-O- XX, as more fully described in and subject to the Findings of Fact, Conclusions of Law and Conditions of Approval within the Ordinance recommended by the Planning Commission on September 18, 2025 and adopted by the Town

Commented [AF3]: Should this be Ordinance? Or are we referencing about the Resolution (Exhibit I)?

DRAFT

Council on _____, a copy of which is attached hereto as Exhibit I and incorporated herein by this reference (collectively referred to herein as the "**Rezone Ordinance**").

Commented [AF4]: Should this be Ordinance? Or should it be the Resolution?

NOW, THEREFORE, in consideration of the mutual covenants, conditions and considerations as more fully set forth below, Developer and Hideout hereby agree as follows:

1. Project Conditions:

1.1. Incorporation of Recitals. The foregoing Recitals are, by this reference, incorporated into the body of this Agreement as if the same had been set forth in the body of this Agreement in their entirety.

1.2. Approval Documents. The (i) Findings of Fact, Conclusions of Law and Conditions of Approval dated _____, 20__, attached hereto as Exhibit I, and (ii) the Master Concept Plan Approval dated 2/18/2025, and updated by the Planning Commission, attached hereto as Exhibit C, together with related documents attached hereto, are hereby incorporated herein by reference (the "**Approval Documents**") and shall govern the development of the Project, subject to the provisions of this Agreement, including the rights to construct the following:

Property Type	**Unit Count (Gross Floor Area per Unit,[1] Excluding Single-Family Lots)**	**ERU Count**
Neighborhood Commercial (limited to the following uses: restaurant, bar, grocer, or market)	+/-15,000 / 1 (minimum 12,000 SF and maximum 16,000 SF)	6 ERUs (.75 ERU per 2,000 SF)
Villas (Single-family dwelling lots not to exceed 3,000 SF Lots.)	Up to 3,000 SF ea. / 5	5 ERUs
Single-Family Lots	7 lots	7 ERUs
Total ERUs		12 Residential ERUs 6 Commercial ERUs

The density outlined above is a maximum density and not an entitled density allowance unless the site can support that density. The Town's development standards, including those contained in the HMC, and the Engineering Standard Specifications and Drawing Manual must be met. These requirements address the health, safety, and welfare standards required by the Town and adherence to these standards may cause a lower density if the site cannot meet those standards with the allotted density.

There will be two types of residential uses - single-family lots and villas. A villa is a detached single-family residential dwelling with a maximum gross square footage of 3,000 square feet on a

[1] Gross floor area is defined as follows: "The sum of the gross horizontal areas of all floors of a Building measured from the exterior face of exterior, but not including interior or exterior parking spaces, or loading space for motor vehicles." HMC § 10.12.

DRAFT

lot smaller than 1 acre.

The project meets the requirements of Cluster Development pursuant to HMC Chapter 12.06 (Cluster Development) which allows for reduced lot sizes of less than 1 acre for single family lots in the Mountain (M) residential zone (see Exhibit C) and which strictly defines lot sizes, maximum building envelopes with areas of non-disturbed land/vegetation defined. However, the application does not require a Conditional Use Permit (CUP) pursuant to the HMC or a Planned Performance Development (PPD) pursuant to the former Town Code, because the small-lot standards are expressly approved under this Master Development Agreement (MDA), §1.3.1. The exception granted herein for reduced lot size applies to all twelve (12) residential lots.

Development Applications for an Administrative Conditional Use Permit (as necessary, except as otherwise excepted under this Agreement) and Hideout Building Department building permits are required prior to the commencement of any construction in connection with the Project and shall be processed and granted as set forth in this Agreement and the HMC, as amended from time to time.

1.3. Governing Standards. The Concept Plan, the Approval Documents, and this Agreement establish the conceptual layout and design for the Project, and include the generally anticipated uses, anticipated density, intensity and general configuration for the Project all of which are subject to final subdivision submittal and review where Town Code provisions may alter the Concept Plan or reduce the density. Applications for approval for the Project shall be subject to the requirements of the HMC, except as otherwise expressly provided in this Agreement. The Project shall be developed by the Developer in accordance with the Concept Plan, the Approval Documents, and this Agreement. All Developer submittals must comply generally with the Concept Plan, the Approval Documents, and this Agreement. Non-material variations to the Concept Plan, as defined and approved by the Town Planner, such as exact building locations, exact locations of open space, residential access driveways, signage, and parking may be varied by the Developer without official Town Council or Planning Commission approval. Such variations however shall in no way increase the maximum density, use, and intensity of the development of the Project. Any change that increases the maximum density, use, and intensity of development is not precluded, however, it shall require prior approval of the Planning Commission and the Town Council.

1.3.1 Exceptions to the HMC. Hideout acknowledges that as part of this development agreement it is granting certain exceptions to the HMC, including:

A. Construction of seven single-family residential units (Lots 1 through 7), five smaller single-family villas (Lots 8 through 12) and a commercial building as well as a related residential access roadway (see Exhibits C and D) on portions of slopes up to 36% slope (exceeding the HMC allowance of 30%)
B. Developer shall not be required to obtain a separate conditional use permit (CUP) for the cluster development proposed by Developer
C. Reduced lot sizes for the seven single-family residential units (Lots 1 through 7) and the five single-family villas, all of which are clustered as illustrated in the Concept Plan (Exhibit C), and which are permitted to ensure open space preservation on the upper

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portions of the site (Code ordinarily requires 1 acre minimum lots size, but allows for less with a conditional use permit, but such requirement has been excepted under this Agreement)

D. Reduced Minimum Setbacks for the single-family lots (all garages will be accessed from the side yard):
   - Front yard: 15'-0" (Code requires 50'-0")
   - Rear yard: 20'-0" (Code requires 30'-0")
   - Side yards (each): 15'-0" (Code requires 25'-0")

E. Reduced Minimum Setbacks for the residential villa properties in the Mountain (M) zone:
   - Front yard: 20'-0" (Code requires 50'-0")
   - Rear yard: 20'-0" (Code requires 30'-0")
   - Side yards (each): 10'-0" (Code requires 25'-0")

F. Retaining walls of up to a maximum of twelve (12) feet in height in the residential areas of the proposed development (see Exhibit C): (Code allows up to 10'-0")

G. Retaining walls of up to a maximum of twenty-three (23) feet in height in the area of the access road, particularly Wildhorse Way (see Exhibit C) (Code allows up to 10'-0")

H. Retaining walls of up to twenty (20) feet in height in the commercial areas (NMU zoned) of the proposed development (see Exhibit C): (Code allows up to 10'-0")

I. Short-term rentals shall be permitted for the Villas, which shall be subject to generally applicable requirements for operating short-term rentals under the HMC.

Commented [TE5]: Added "term"

The above list is the complete list of exceptions. No other exceptions from the HMC are permitted without an amendment to this Agreement. This list controls over depictions in an Exhibit.

1.4. **Utilities**. Developer shall be responsible, at Developer's sole cost and expense, to obtain and/or install all connections and other utility infrastructure necessary for the Project. Nothing in this Section or any other provision of this Agreement shall be interpreted as prohibiting Developer from establishing a Public Infrastructure District ("PID") in accordance with applicable Utah Code and Town of Hideout ordinances and policies if and when such PID is approved by the Town Council.

1.5. **Master Concept Plan**. The Planning Commission approved the Concept Plan on February 18, 2025. The updated Master Concept Plan (Exhibit C) serves as the base plan for rezoning, and is incorporated by reference.

On September 18, 2025, the Planning Commission recommended approval with conditions. The Council has reviewed those recommendations and hereby adopts the following conditions:

Commented [TE6]: TE made this plural

Commented [PM7]: Note that the Planning Commission recommended only having two entrances to the villas. The proposed version doesn't follow that condition based on the discussion at the last Council meeting.

A. Developer shall create an HOA responsible for snow removal on the road for Lots 1-8 of the Development.

B. If permitted by the utility service provider, Developer shall remove the utility pole on Lot 12 and place such utilities underground.

C. Developer shall construct a trail through the open space to connect to the KLAIM trail

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network; the exact location of the trail will be determined based on the future location of the KLAIM trail network and with input from the Town Planner and/or POST Committee

D. As a condition precedent to the issuance of any development permit including a grading permit for the Development, Developer shall obtain an easement to provide emergency access connecting the Development to the adjoining KLAIM property.

E. Developer shall commence the Wildhorse Commercial by submitting an application no later than September 30, 2026. Absent force majeure, Developer shall complete the Wildhorse Commercial no later than twenty-four (24) months after issuance of a building permit. For the purposes of this paragraph, "complete" means the construction of exterior hardscape (e.g., parking lot, sidewalks, associated retaining walls, and landscaping) and exterior walls/roof of the commercial building, but does not include interior tenant buildout or tenant occupancy. Upon showing reasonable efforts towards completion, Developer shall have the right to extend this completion term for a period of six (6) months by providing notice to the Town Council no later than thirty (30) days before end of the twenty-four (24) month period contemplated by this paragraph.

Commented [PM8]: Staff recommends having a condition that the building permits for the villas can't be issued until the commercial is complete.

Commented [PM9R8]: This should be a note on any plat

F. Developer shall construct a well designed and contextually sensitive pedestrian barrier with the minimum protection of a jersey barrier or guard rail adequate to address safety concerns along the west side of the road accessing Lots 1-8.

G. Developer's design of stormwater, roadways, public access, snow storage, and retaining walls shall comply with the requirements of HMC, except as otherwise specifically provided by this Agreement.

H. A 5'-0" concrete sidewalk, with a landscaped park-strip, must be installed from Miner Way Road up Woolf Road to steps that lead into the commercial development. Beyond this point, and within the residential area of the development, a decomposed granite (DG) trail shall be installed.

I. Developer shall submit a Landscape Plan for review and input by the Town Planner with the permit applications for Wildhorse Commercial and Wildhorse Villas. Such Landscape Plans shall meet the standards for combustible materials as set forth in the HMC.

J. All common area open space shall remain undisturbed except for the inclusion of a trail that connects to KLAIM's trails system.

The Parties expect that the issues identified will be resolved after final plans are submitted in collaboration with Town Staff in a manner that meets the requirements of the HMC in the course of final approvals. Nothing in the above recommendations shall preclude Developer from securing final approval if Town Staff agree to alternatives as to an issue that otherwise meet the requirements of the HMC.

1.6. <u>Architectural Guidelines</u>. All development in the Project will be consistent with the Architectural Guidelines included as Exhibit J, as permitted by Utah Code section 10-9a-

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534(3)(d), and incorporated herein by reference. None of these guidelines supersede the Town's HMC standards. The Town of Hideout's Design Review Committee (DRC) shall have review authority.

1.7. Subdivision Requirements. All requirements for Preliminary and Final Subdivision must be submitted in accordance with the Town Code. The construction mitigation plan shall identify any areas to be used as construction staging areas. Any disturbance in the Town-permitted construction staging areas, except as otherwise contemplated by the updated Concept Plan (Exhibit C) and the detailed slope map (Exhibit D) or final approval, shall be fully restored to existing conditions once use of the construction staging area is complete. The areas designated as "open space" shall not be disturbed in any way, including no allowance for construction staging. No fill is allowed anywhere on site unless needed to support structures or roads. Excess fill must be removed from the site in accordance with best practices.

1.8. Preservation of Native Vegetation and Slopes. The major portions of the Project shall remain undisturbed, meaning there will be no change to the contours of the land, nor will any native vegetation be removed or disturbed in the areas designated as open space on the Concept Plan. All construction and grading shall be subject to review by the Town Engineer and Town Planner for massing, screening, slope stabilization, erosion mitigation, and vegetation protection as may be required and revisions to the layout may be required. **No single residential lot shall have more than 66% of the lot area disturbed in any manner. This will be strictly enforced at time of individual building permit application and will be included as a note on the subdivision plat**.

1.9. Limits of Disturbance. Building envelopes depicting the limitations of disturbance of land shall be defined at time of subdivision approval for each phase, leaving undisturbed land between building envelopes. No disturbance to natural vegetation shall extend beyond any Limits of Disturbance (LOD) fence line.

1.10. Additional Specific Developer Obligations. As an integral part of the consideration for this agreement, the Developer voluntarily agrees as follows:

1.10.1. Developer's Mitigation-of-Impact Contribution. In addition to the many other public contributions identified within this Agreement, and for the purpose of mitigating any impacts of the Project on Hideout, Developer shall construct trails on the site and trails and/or sidewalks that connect to nearby residential development, as contemplated in the Concept Plan.

1.10.2. The developer agrees to construct the commercial building as conceptualized in Exhibit F in accordance with the Phasing Schedule contemplated by this Agreement.

1.11. Timeliness. Development applications shall be approved by the Hideout Municipal Code in accordance with Utah Code.

1.12. Town's Denial of a Development Application. If Hideout denies any Development Application, Hideout shall provide a written determination advising the Applicant

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of the reasons for denial, including the specific reasons why Hideout believes that the Development application is not consistent with this Agreement, applicable law, the HMC, or Hideout's vested rights laws.

1.13. Meet and Confer Regarding Development Application Denials. Hideout and Applicant shall meet within fifteen (15) business days of any denial to resolve the issues specified in the denial of a Development Application.

1.14. Denials Based on Denials from Non-Town Agencies. If Hideout's denial of a Development Application is based on the denial of the Development Application by a non-Hideout agency, Developer shall appeal any such denial through the appropriate procedures for such a decision and not through the processes specified below.

1.15. Mediation of Development Application Denials.

1.15.1. Issues Subject to Mediation. Issues resulting from Hideout's denial of a Development Application shall be mediated by a third-party mediator in accordance with this Section.

1.15.2. Mediation Process. If Hideout and Applicant are unable to resolve a disagreement subject to mediation, the parties shall attempt within ten (10) business days to appoint a mutually acceptable mediator, free of conflicts, with subject matter knowledge of the issue in dispute. If the parties are unable to agree on a single acceptable mediator, they shall each, within ten (10) business days, appoint their own representative. These two representatives shall, between them, choose the single mediator. All such mediators shall be free of conflicts. Applicant shall pay the fees of the chosen mediator. The chosen mediator shall within fifteen (15) business days, review the positions of the parties regarding the mediation issue and thereafter promptly attempt to mediate the issue between the parties. If the parties are unable to reach agreement, the mediator(s) shall notify the parties in writing of the resolution that the mediator deems appropriate. The mediator's opinion shall not be binding on the Parties.

1.15.3. No Monetary Damages. If there is any litigation related to denials of applications or interpretation of this Agreement, no monetary damages shall be claimed against the Hideout, its staff or elected officials. All claims shall be limited to specific performance.

1.16. Compliance with Other Laws. Developer shall be responsible for compliance with all local, state, and federal regulations including but not limited to those regarding the soils and environmental conditions on the Property. Furthermore, Developer shall be responsible for receiving any required Army Corp of Engineer Permits related to any riparian zone if it is required by applicable federal law.

2. Approval and Reserved Legislative Powers.

2.1. Development Approval. Subject to the provisions of this Agreement, Developer

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is hereby granted the right to develop and construct the Project in accordance with the general uses, densities, massing, intensities, and general configuration of development approved in this Agreement, in accordance with, and subject to, the terms and conditions of the Approval Documents, and subject to compliance with the other applicable ordinances and regulations of Hideout. Hideout shall have the right to inspect all work during normal business hours and developer shall facilitate and fully cooperate with all such inspections, including but not limited to providing documents containing drawings, plans, surveys, specifications and the results of all 3rd party inspections/evaluations.

2.2. **Roads**. Roads in the Project shall be constructed to Town standards. It is anticipated at this time that all shall be public. The maintenance of these roads and any utilities located under or adjacent to them shall be the responsibility of the homeowner or the HOA until such time the roads are dedicated to the Town of Hideout. All roads will be dedicated to the Town subject to compliance with all engineering standards and shall be approved by the Town Engineer.

2.3. **Reserved Legislative Powers**. Developer acknowledges that Hideout is restricted in its authority to limit its police power by contract and that the limitations, reservations, and exceptions set forth herein are intended to reserve to Hideout all of its police power that cannot be so limited. Notwithstanding the power of Hideout to enact legislation under the police powers vested in Hideout, such exercise of power through legislation shall only be applied to modify land use and zoning regulations which are applicable to the Project in conflict with the terms of this Agreement based upon policies, facts, and circumstances meeting the important, countervailing public interest exception to the vested rights doctrine in the State of Utah. Any such proposed legislative changes affecting the Project and terms and conditions of this Agreement under the above specific limitations and applicable to the Project shall be of general application to all development activity in Hideout; and, unless Hideout declares an emergency, Developer shall be entitled to the required notice and opportunity to be heard with respect to the proposed change and its applicability to the Project under the compelling, countervailing public interest exception to the vested rights doctrine. Nothing in this section shall limit the future legislative amendment of more specific ordinances or codes for which the Developer does not yet have a vested right, and except as otherwise provided in this agreement, no such rights will vest until such time as a completed application is approved by Hideout in conformance with the then applicable code(s), including but not limited to building and energy, lighting, sign, and subdivision codes.

2.4. **No Undisclosed Rights**. Developer acknowledges that this Agreement does not restrict any rights that Developer holds under clearly established state law. This Agreement is expressly authorized by Utah Code Section 10-9a-532. The Parties have had the opportunity to obtain legal counsel and have them review this Agreement. Due to Developer incentives and requirements consistent with Utah Code Section 10-9a-535 (1 and 3) including the Town's approval of Ordinance _____, the Parties acknowledge that this Agreement may remove, replace, or modify certain rights and responsibilities under the Utah Municipal Land Use, Development, and Management Act (the "**Act**"), the Hideout Land Management Code and applicable common law. Notwithstanding any legal rights afforded to the Parties under the Act, the terms of this Agreement shall govern. Developer expressly agrees that the Town of Hideout has met any obligation it may owe under Utah Code Section 10-9a-532(2)(c).

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2.5. **Application Under Town's Future Laws**. Without waiving any density rights or exceptions granted by this Agreement, when the Developer submits a Development Application for some or all of the Project such application shall be reviewed under the Town's Future Laws in effect at the time of the Development Application in accordance with Section 3.3.

3. General Terms and Conditions.

3.1. **Term of Agreement**.

3.1.1. Unless earlier terminated as provided for herein, the term of this Agreement shall expire on December 31, 2029 (see Exhibit G). If Developer has not been declared to be currently in Default as of December 31, 2029 (and if any such Default is not being cured) then this Agreement shall be automatically extended until January 31, 2031.

3.1.2. This Agreement shall also terminate automatically at Project Buildout which shall be defined as the date on which a final inspection is completed for the last Project improvement, residential home or other structure to be constructed pursuant to the Approvals, Subsequent Approvals and this Agreement.

3.1.3. Failure of Developer to obtain a permit from the building department and commence work on the Project in connection with said permit within thirty-six (36) months after the date of recordation of this Agreement shall constitute a default as contemplated by this paragraph. Notwithstanding the foregoing, however, the maintenance obligations of the Association shall survive termination of this Agreement and continue in perpetuity.

3.2. **Binding Effect; Agreement to Run with the Land**. This Agreement shall be recorded against the Property and shall be deemed to run with the land, provided it remains effective, and shall be binding on all successors and assigns of Developer in the ownership or development of any portion of the Property.

3.3. **Vested Rights Granted by Approval of this Agreement**. To the maximum extent permissible under the laws of Utah and the United States and at equity, the Parties intend that this Agreement grants to Developer all rights to develop the Project as described in this Agreement, the Town's Laws, the zoning of the Property, and the Final Plan except as specifically provided herein. The Parties specifically intend that this Agreement grant to Developer the "vested rights" identified herein as that term is construed in Utah's common law and pursuant to Utah Code Ann. § 10-9a-509 (2018).

3.4. **Water**. At the time Developer submits an application for a subdivision plat for any phase of the development, the Developer shall provide satisfactory evidence confirming that it has sufficient dedicated or reserved water with Jordanelle Special Service District ("JSSD") to service the existing and proposed development phase as reflected on the plat to be recorded. As a condition of approval of the plat, Developer shall, at the time of the recordation of the plat, provide a will-serve letter from JSSD and execute all necessary documents to transfer any water reservation

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agreement to the Town. Level of service shall be calculated at 0.45 acre feet per ERU and per 3,000 sf of Commercial/Retail and 3.0 ac-ft per irrigated acre for all phases of the development. Level of service shall be calculated based on the level in effect at the time of submission of the subdivision plat for the relevant phase in accordance with the HMC.

Commented [PM10]: Wildhorse would like the Council to consider removing the prior sentence (in blue) and inserting this sentence instead.

Commented [PM11R10]: This is a negotiation point regarding the water required for the projet.

3.5. **Public Infrastructure**. Developer, at Developer's cost and expense, shall have the right and the obligation to construct or cause to be constructed and install all Public Infrastructure reasonably and lawfully required as a condition of approval of a Development Application pursuant to the Town's Laws. Snow removal shall be the responsibility of the private landowners and/or HOA. Road construction must meet all applicable standards and requirements and must be approved by the Town's Engineer, or his designee. Developer shall provide proof of adequacy of utilities for each phase of the Project prior to the recording of a plat for that phase. Consistent with Section 1.4 of this Agreement, it is anticipated that Developer shall apply for a PID to facilitate the construction of the infrastructure contemplated by this section. Such PID is not approved as part of this Agreement and must go through the process required for PIDs.

3.6. **Assignment**. The rights and responsibilities of Developer under this Agreement may be assigned in whole or in part by Developer with the consent of Hideout as provided herein.

a. Notice. Developer shall give Notice to Hideout of any proposed assignment and provide such information regarding the proposed assignee that Hideout may reasonably request in making the evaluation permitted under this Section. Such Notice shall include providing Hideout with all necessary contact information for the proposed assignee.

b. Partial Assignment. If any proposed assignment is for less than all of Developer's rights and responsibilities, then the assignee shall be responsible for the performance of each of the obligations contained in this Agreement to which the assignee succeeds. Upon any such approved partial assignment, Developer shall be released from any future obligations as to those obligations which are assigned but shall remain responsible for the performance of any obligations that were not assigned.

c. Grounds for Denying Assignment. Hideout may withhold its consent if Hideout is not reasonably satisfied of the assignee's reasonable financial ability to perform the obligations of Developer proposed to be assigned.

d. Assignee Bound by this Agreement. Any assignee shall consent in writing to be bound by the assigned terms and conditions of this Agreement as a condition precedent to the effectiveness of the assignment.

3.7. **No Joint Venture, Partnership or Third-Party Rights**. This Agreement does not create any joint venture, partnership, undertaking, or business arrangement between the parties hereto. Nor does it create any rights or benefits to third parties. The Parties acknowledge that this Agreement refers to a private development and that Hideout has no interest in, responsibility for, or duty to any third parties concerning any improvements to the Property unless Hideout has accepted the dedication of such improvements

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3.8. **Integration**. This Agreement and the Approval Documents collectively contain the entire agreement with respect to the subject matter hereof and integrates all prior conversations, discussions or understandings of whatever kind or nature and may only be modified by a subsequent writing duly executed by the parties hereto.

3.9. **Severability**. If any part or provision of this Agreement shall be determined to be unconstitutional, invalid or unenforceable by a court of competent jurisdiction, then such a decision shall not affect any other part or provision of this Agreement except that specific provision determined to be unconstitutional, invalid, or unenforceable. If any condition, covenant, or other provision of this Agreement shall be deemed invalid due its scope or breadth, such provision shall be deemed valid to the extent of the scope or breadth permitted by law.

3.10. **Minor Administrative Modification**. Minor administrative modifications to the Concept Plan shall be allowed by the Town's Planner or his/her designee. Any substantive modifications to the concept plan such as changes in access, including but not limited to number of structures, building locations, building size, setback, or density shall be reviewed and recommended for action by the Planning Commission with final approval of the Town Council for consistency with the Master Concept Plan included in Exhibit C.

3.11. **Further Documentation**. This Agreement is entered into by the Parties with the recognition and anticipation that subsequent agreements, plans, profiles, engineering and other documentation implementing and carrying out the provisions of this Agreement are necessary as required or set forth in this Agreement and the HMC. Compliance with the Town's Engineering Standards and Specifications is required and no exceptions are permitted, except as otherwise specifically identified in this Agreement, without an amendment to this document. The Concept Plan does not vest the Developer except as specifically stated in this Agreement.

3.12. **No Waiver**. Failure to enforce any rights under this Agreement or applicable laws shall not be deemed to constitute a waiver of such right.

3.13. **Default**.

3.13.1. **Notice**. If Developer or the Town fails to perform their respective obligations hereunder or to comply with the terms hereof, the party believing that a Default has occurred shall provide Notice in writing to the other party. If the Town believes that the Default has been committed by a sub-developer, then the Town shall also provide a courtesy copy of the Notice to Developer.

3.13.2. **Contents of the Notice of Default**. The Notice of Default shall:

3.13.2.1. **Specific Claim**. Specify the claimed event of Default;

3.13.2.2. **Applicable Provisions**. Identify with particularity the provisions of any applicable law, rule, regulation, or provision of this Agreement (including exhibits) under which the claimed Default has occurred;

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3.13.2.3. **Materiality**. Identify why the Default is claimed to be material; and

3.13.2.4. **Cure**. If applicable, the Party shall propose a method and time for curing the Default which shall be of no less than sixty (60) days' duration.

3.13.3. **Meet and Confer; Mediation**. Upon the issuance of a Notice of Default the parties shall engage in the "Meet and Confer" and "Mediation" processes specified in Section 1.16.

3.13.4. **Remedies**. If the parties are not able to resolve the Default by "Meet and Confer" or by Mediation, then the parties may have the following remedies:

3.13.4.1. **Law and Equity**. All rights and remedies available at law and in equity, including injunctive relief, specific performance, and termination, but not including damages or attorney's fees in conformance with Section 1.15.3 No Monetary Damages.

3.13.4.2. **Security**. The right to draw on any security posted or provided in connection with the Project and relating to remedying of the particular Default.

3.13.4.3. **Future Approvals**. The right to withhold all further reviews, approvals, licenses, building permits, and/or other permits for development of the Project in the case of a default by the Developer, or, in the case of a default by a sub-developer, development of those Parcels owned by the sub-developer until the Default has been cured.

3.13.4.4. The rights and remedies set forth herein shall be cumulative.

3.14. **Applicable Law**. This Agreement is entered into in Wasatch County in the State of Utah and shall be construed in accordance with the laws of the State of Utah irrespective of Utah's choice of law rules.

3.15. **Venue**. Any action to enforce this Agreement shall be brought only in the Third District Court for the State of Utah, Salt Lake City.

3.16. **Non Liability of City Officials and Employees.** No officer, representative, consultant, contractor, attorney, agent or employee of Hideout shall be personally liable to the Developer, or any successor in interest or assignee of the Developer, for any default or breach by Hideout, or for any amount which may become due to the Developer, or its successors or assignees, or for any obligation arising under the terms of this Agreement.

3.17. **Agreement**. This Agreement, and all Exhibits thereto, is the entire agreement between the Parties and may not be amended or modified except either as provided herein or by a subsequent written amendment signed by all Parties.

3.18. **Mutual Drafting**. Each Party has participated in negotiating and drafting this Agreement therefore no provision of this Agreement shall be construed for or against any Party based on which Party drafted any particular portion of this Agreement.

3.19. **Authority**. The Parties to this Agreement each warrant that they have all of the necessary authority to execute this Agreement. Specifically, on behalf of Hideout, the signature of the Mayor of Hideout is affixed to this Agreement lawfully binding Hideout pursuant to Resolution No. _____ (Exhibit I) adopted by Hideout on _____, 20__

3.20. **Indemnification**.

3.20.1. Agreement. The Developer shall indemnify, defend and hold harmless Hideout against all claims, costs, damages, attorney's fees, planning fees, expenses, liabilities or other losses incurred by, or asserted against, or levied against Hideout arise out of rights or obligations secured by into this Agreement.

3.20.2. Third-Party Impact Fee Claims. In the event that the Developer seeks a waiver or reduction of impact fees, the Developer shall indemnify, defend, and hold harmless Hideout against all claims, costs, damages, attorney's fees, expenses, liabilities, or losses incurred by, asserted against, or levied against Hideout by a third-party arising out of the waiver or reduction of the Developer's impact fees.

3.21. **Notices**. All notices required or permitted under this Agreement shall, in addition to any other means of transmission, be given in writing and delivered to the Mayor with a copy to the Town Attorney. In addition, a copy must be provided by certified mail and regular mail to the following address:

To Developer:
Hoggan Lee Hutchinson
Attn: Justin Keys
1225 Deer Valley Drive Suite 201
Park City, Utah 84060

To the Town:
The Town of Hideout
Attn: Town Clerk
10860 North Hideout Trail
Hideout, Utah 84036

4. Phasing: Access.

4.1. **Project Phasing**. The Project shall be constructed in phases in accordance with the Phasing Schedule (see Exhibit G) and in accordance with the HMC. Developer may proceed by constructing the Project all at one time or by phase within this approved project Phasing Plan. Any major modifications or elaborations to the approved Phasing Plan must be approved by the Town Council prior to the commencement of construction of the applicable phase. If such proposed major modifications or elaborations are substantial as determined by the Town's Building Department designee or the Town Planner, such modifications or elaborations will come before the Town Council for approval.

4.2. **Construction of Access**. Developer may commence grading access to the Project as approved by the Town Engineer according to Town standards, and pursuant to permit

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requirements of the HMC, the International Building Code (or if such Code is no longer then in effect, according to the code that is, in fact, then in effect), the Uniform Fire Code, and the Army Corps of Engineers. Developer shall be responsible for maintenance of any such accesses until they are completed according to Town standards and accepted by the Town.

4.3. **Forms of Ownership Anticipated for Project**. The Project will consist of several commercial buildings and related improvements, along with residential units consisting of single-family residences and nightly rental cabin or villa units. Those villa or cabin units shall comply with HMC provisions regulating nightly rentals, including in obtaining business licenses and paying transient room tax as applicable. Such nightly rentals shall be regulated through the homeowner's association and shall be governed by appropriate restrictive covenants recorded against the same.

5. List of Exhibits.

Exhibit A:	Legal Description
Exhibit B:	Deed Restriction on Property Adjacent to SR248
Exhibit C:	Master Concept Plan (Updated)
Exhibit D:	Slope Map with Maximum Building Envelopes on Slope Map & Areas to Remain Undisturbed
Exhibit E:	Conceptual Drainage and Utility Plan
Exhibit F:	Conceptual Commercial Site Plan and Conceptual Rendering
Exhibit G:	Phasing Schedule
Exhibit H:	Copy of Planning Commission Recommendation for Concept Plan and Rezoning
Exhibit I:	Copy of Town Council Resolution including the Findings of Fact, Conclusions of Law, and Conditions of Approval
Exhibit J:	Design and Architecture Guidelines NEEDS TO BE UPDATED (A CONDITION OF APPROVAL
Exhibit K:	Rezone Plan for Site NEEDS AN UPDATED EXHIBIT

IN WITNESS WHEREOF, this Agreement has been executed by the Developer by persons duly authorized to execute the same and by the Town of Hideout, acting by and through its Town Council as of the ___ day of _____, 2025.

TOWN OF HIDEOUT

By: _____
Ralph Severini, Mayor

ATTEST:

By: _____
_____, Recorder for Hideout

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APPROVED AS TO FORM:

_____
Polly McLean, Town Attorney

DEVELOPER:
XXXX

a Utah limited liability company

By:_____

Name: _____

Title: _____

STATE OF UTAH)
: ss
COUNTY OF _____)

On this ____ day of _____, 2025, personally appeared before me _____, whose identity is personally known to me/or proved to me on the basis of satisfactory evidence and who by me duly sworn/affirmed, did say that s/he is a member/manager of XXXX, LLC, a Utah limited liability company_____

Notary Public

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EXHIBIT "A"

LEGAL DESCRIPTION

Parcel 1:
Beginning at a point South 89'33'19" West along the section line 1778.805 feet from the Northeast corner of Section 17,Township 2 South Range 5 East, Salt Lake Base and Meridian; and running thence South 0'03'56" East 877.49 feel; thence South 89'28'38" West 1112.25 feet; thence North 0"05'38" East 879.02 feet to the Section line, thence North 89" 33'19" East along said Section line 1109.80 feet to the point of beginning.
Subject to an access road described as follows:

Commencing at the Northeast corner of Section 17, Township 2 South, Range 5 East, Salt Lake Base and Meridian; thence along the North line of said Section 17, South 89"33'19" West a distance of 1778.805 feet, thence South 00'03'55" East a distance of 877 .49 feet; thence South 89'28'38" West a distance of 406.30 feet to the point of beginning; thence South 89"29'38" West a distance of 38.05 feet; thence North 38'29'21" West a distance of 489.78 feet; thence North 70" 51'31" East a distance of 31 .80 feet; thence South 38'29'21" East a distance of 502.66 feet to the point of true point of beginning.

Excepting therefrom the following.

Exception Parcel 1:
Those portions of the above-described property conveyed to the United States of America by Warranty Deed recorded December 8, '1987 as Entry No. 144365, in Book 196, at Page 262 of the official records, more particularly described as follows:

Beginning at the Southwest corner of said entire tract, which point is approximately 432.20 feet North 0"31'23" East (highway bearing) and 224.05 feet North 89'28'37" West (highway bearing) from the Southwest corner of said Lot 2; thence North 89'28'38" East (which equals highway bearing North 89"28'07" East) 492.51feet, more or less, along the South boundary line of said entire tract to a point 150.0 feet perpendicularly distant Northeasterly from the center line of said project; thence North 52"00'00" West 620.60 feet, more or less, to the West boundary line of said entire tract thence South 0"05'38" West (South 0"30'42'West highway bearing) 386.66 feet, more or less, along said West line to the point of beginning.

Exception Parcel 2:
Those portions of the above-described property conveyed to William B. Woolf by Warranty Deed recorded June 9, 1999 as Entry No.214947 in Book 427 al Page 134 of the official records, more particularly described as follows:

Beginning at a point that is South 89"33'19" West 2496.785 feet along the Section line from the Northeast corner of Section 17, Township 2 South, Range 5 East, Salt Lake Base and Meridian; thence South 12"48'31" East 292.39feel: thence South 24'02'26" East 142.37 feet; thence South

DRAFT

33"47'10" West 38.'17 feet; thence South 70'51'32" West 143.50 feet; thence South 89"33'19" West 358.65 feet; thence North 00"05'38" East 493.66 feet; thence North 89"33'19" East 391.81 feet to the point of beginning.

(Tax Serial No. 0Hl-0017 and Parcel No. 00-0020-8164)

DRAFT

ALTA/NSPS LAND TITLE SURVEY

PARCEL NUMBER 20-8164, LOCATED IN THE NORTHEAST QUARTER (NE $\frac{1}{4}$),TOWNSHIP 2 SOUTH, RANGE 5 EAST SALT LAKE BASE AND MERIDIAN, HIDEOUT, WASATCH COUNTY, UTAH

BASIS OF BEARING:
SOUTH 89°33'19"W BETWEEN A FOUND MONUMENT AT THENORTHEAST CORNER AND A FOUND MONUMENT AT THE NORTH $\frac{1}{4}$ CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN

SURVEYOR'S CERTIFICATE:

I, TYLER E. JENKINS, DO HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL LAND SURVEYOR IN THE STATE OF UTAH AND THAT I HOLD LICENSE NUMBER 4938730 IN ACCORDANCE WITH THE PROFESSIONAL ENGINEERS AND LAND SURVEYORS ACT, TITLE 58, CHAPTER 22, OF UTAH CODE; I FURTHER CERTIFY THAT BY AUTHORITY OF THE OWNERS I HAVE COMPLETED A SURVEY OF THE PROPERTY DESCRIBED ON THIS PLAT IN ACCORDANCE WITH TITLE 17, CHAPTER 23, SECTION 17, OF UTAH CODE; AND THAT THE BOUNDARY CORNERS AND REFERENCE MONUMENTS SHOWN ON THIS PLAT ARE LOCATED AS INDICATED.

SURVEY NARRATIVE:

THE PURPOSE OF THIS SURVEY IS TO CORRECTLY IDENTIFY THE BOUNDARY LINES AND CORNERS OF THE PROPERTY DESCRIBED IN THE PROVIDED TITLE COMMITMENT, TO AID IN THE FUTURE DEVELOPMENT OF SAID PROPERTY.

THE FIELD DATA FOR THIS SURVEY WAS COLLECTED WITH A COMBINATION OF GPS (VRS) AND ROBOTIC TOTAL STATION METHODS. THE HORIZONTAL AND VERTICAL CONTROL WAS ESTABLISHED FROM THE UTAH REFERENCE NETWORK (TURN) GPS WHICH PROVIDED DIFFERENTIALLY CORRECTED POSITIONS IN NORTH AMERICAN DATUM 1983 (NAD83) AND NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88). THE RAW DATA FOR THIS SURVEY IS THE UTAH STATE PLANE COORDINATE SYSTEM NAD83(2011) CENTRAL ZONE-4302 US FOOT, AS DETERMINED BY GPS OBSERVATIONS FROM (TURN) GPS.

THE BOUNDARY DESCRIPTION REPRESENTS THE EVIDENCE OF EXISTING RIGHT OF WAYS, OCCUPATION AND RECORDED SUBDIVISIONS WHICH THEN TIES TO EXISTING PLSS MONUMENTATION AND FOUND SURVEY BOUNDARY MONUMENTATION.

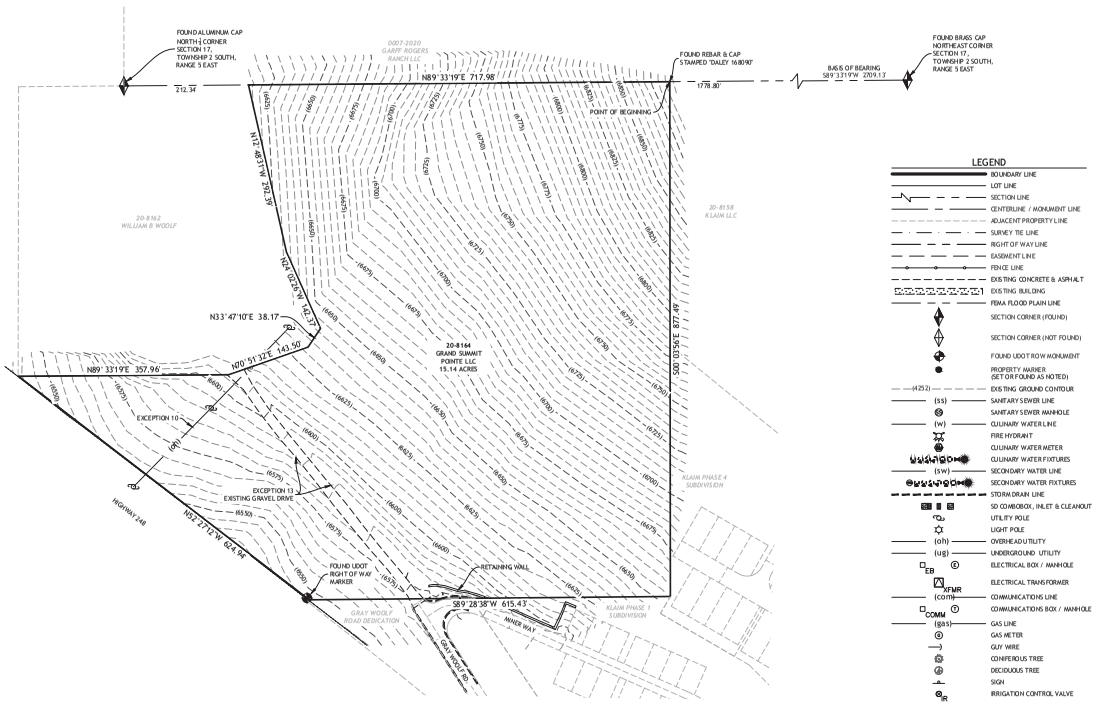
TO: OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY, COALITION TITLE AGENCY AND GRAND SUMMIT POINTE LLC

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5 AND 13 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON OCTOBER 12, 2023.

DATE OF MAP: OCTOBER 12, 2023.

GENERAL NOTES:

1. THIS SURVEY IS BASED UPON A COMMITMENT FOR TITLE INSURANCE ISSUED BY OLD REPUBLIC NATIONAL TITLE INSURANCE COMPANY AND COALITION TITLE AGENCY.
2. THIS SURVEY ADDRESSES SURVEY RELATED SCHEDULE B EXCEPTIONS TO COVERAGE, SEE THIS SHEET FOR EXCEPTION NOTES.
3. DOCUMENTS PROVIDED (P) AND RESEARCHED (R) IN THE PERFORMANCE OF THIS SURVEY ARE AS FOLLOWS:
   P1) TITLE REPORT COMMITMENT 2, COTTONWOOD TITLE INSURANCE AGENCY, INC. AND STEWART TITLE GUARANTY COMPANY, DATED JULY 19, 2023 - FILE NO.: 30434.
   R1) FEMA MAP NUMBER 49051C0025E - EFFECTIVE DATE, MARCH 15, 2012
   R2) KLAIM SUBDIVISION MAPS PHASES 1, 2, 3 AND 4.
   R3) WOOLF ROAD DEDICATION PLAT.
4. SUBJECT PARCEL IS LOCATED IN "ZONE X" OF SAID FEMA FLOOD MAP.
5. UTILITIES AS SHOWN HEREON WERE LOCATED BASED UPON VISIBLE IMPROVEMENTS AT THE TIME OF THE SURVEY. ADDITIONAL UTILITIES MAY EXIST.
6. THE HEREIN DESCRIBED LAND IS LOCATED WITHIN THE BOUNDARIES OF WASATCH COUNTY WATER DISTRICT NO. 1, JORDANELLE SPECIAL SERVICE DISTRICT, WASATCH COUNTY FIRE PROTECTION SPECIAL SERVICE DISTRICT, WASATCH COUNTY RECREATION DISTRICT, WASATCH COUNTY LEVY, WASATCH COUNTY SCHOOL DISTRICT, WASATCH COUNTY GENERAL HEALTH, WASATCH COUNTY FIRE PROTECTION DISTRICT, WASATCH COUNTY LIBRARY AND CENTRAL UTAH WATER DISTRICT.
7. ALL DIMENSIONS ALONG THE BOUNDARY ARE GAPS AND OVERLAPS BETWEEN THE BOUNDARY LINE AND EXISTING FENCE LINES.
8. NO PROPERTY CORNERS WERE SET IN RELATION TO THIS SURVEY. IT IS ANTICIPATED THAT PROPERTY CORNERS WILL BE SET WITH FUTURE DEVELOPMENT PLATTING.



LEGEND

- BOUNDARY LINE
- LOT LINE
- SECTION LINE
- CENTERLINE / MONUMENT LINE
- ADJACENT PROPERTY LINE
- SURVEY TIE LINE
- RIGHT OF WAY LINE
- EASEMENT LINE
- FENCE LINE
- EXISTING CONCRETE & ASPHALT
- EXISTING BUILDING
- FEMA FLOOD PLAIN LINE
- SECTION CORNER (FOUND)
- SECTION CORNER (NOT FOUND)
- FOUND UDOT ROW MONUMENT
- PROPERTY MARKER (SET OR FOUND AS NOTED)
- (4252) EXISTING GROUND CONTOUR
- (SS) SANITARY SEWER LINE
- SANITARY SEWER MANHOLE
- (W) CULINARY WATER LINE
- FIRE HYDRANT
- CULINARY WATER METER
- CULINARY WATER FIXTURES
- (SW) SECONDARY WATER LINE
- SECONDARY WATER FIXTURES
- STORM DRAIN LINE
- SD COMBOBOX, INLET & CLEANOUT
- UTILITY POLE
- LIGHT POLE
- (oh) OVERHEAD UTILITY
- (ug) UNDERGROUND UTILITY
- EB ELECTRICAL BOX / MANHOLE
- XFMR ELECTRICAL TRANSFORMER
- (COM) COMMUNICATIONS LINE
- COMM COMMUNICATIONS BOX / MANHOLE
- (GAS) GAS LINE
- GAS METER
- GUY WIRE
- CONIFEROUS TREE
- DECIDUOUS TREE
- SIGN
- IR IRRIGATION CONTROL VALVE

RECORD LEGAL DESCRIPTION:

PARCEL 1:

BEGINNING AT A POINT SOUTH 89°33'19" WEST ALONG THE SECTION LINE 1778.805 FEET FROM THE NORTHEAST CORNER OF SECTION 17, TOWNSHIP 2 SOUTH RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; AND RUNNING THENCE SOUTH 0°03'56" EAST 877.49 FEET; THENCE SOUTH 89°28'38" WEST 1112.25 FEET; THENCE NORTH 0°05'38" EAST 879.02 FEET TO THE SECTION LINE; THENCE NORTH 89°33'19" EAST ALONG SAID SECTION LINE 1109.80 FEET TO THE POINT OF BEGINNING.

SUBJECT TO AN ACCESS ROAD DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE ALONG THE NORTH LINE OF SAID SECTION 17, SOUTH 89°33'19" WEST A DISTANCE OF 1778.805 FEET; THENCE SOUTH 00°03'55" EAST A DISTANCE OF 877.49 FEET; THENCE SOUTH 89°28'38" WEST A DISTANCE OF 406.30 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89°29'38" WEST A DISTANCE OF 38.05 FEET; THENCE NORTH 38°29'21" WEST A DISTANCE OF 489.78 FEET; THENCE NORTH 70°51'31" EAST A DISTANCE OF 31.80 FEET; THENCE SOUTH 38°29'21" EAST A DISTANCE OF 502.66 FEET TO THE POINT OF TRUE POINT OF BEGINNING.

EXCEPTING THEREFROM THE FOLLOWING:
EXCEPTION PARCEL 1:

THOSE PORTIONS OF THE ABOVE DESCRIBED PROPERTY CONVEYED TO THE UNITED STATES OF AMERICA BY WARRANTY DEED RECORDED DECEMBER 9, 1987 AS ENTRY NO. 144365, IN BOOK 196, AT PAGE 262 OF THE OFFICIAL RECORDS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID ENTIRE TRACT, WHICH POINT IS APPROXIMATELY 432.20 FEET NORTH 0°31'23" EAST (HIGHWAY BEARING) AND 224.05 FEET NORTH 89°28'37" WEST (HIGHWAY BEARING) FROM THE SOUTHWEST CORNER OF SAID LOT 2; THENCE NORTH 89°28'38" EAST (WHICH EQUALS HIGHWAY BEARING NORTH 89°28'07" EAST) 492.51 FEET, MORE OR LESS, ALONG THE SOUTH BOUNDARY LINE OF SAID ENTIRE TRACT TO A POINT 150.0 FEET PERPENDICULARLY DISTANT NORTHEASTERLY FROM THE CENTER LINE OF SAID PROJECT; THENCE NORTH 52°0'00" WEST 620.60 FEET, MORE OR LESS, TO THE WEST BOUNDARY LINE OF SAID ENTIRE TRACT THENCE SOUTH 0°05'38" WEST (SOUTH 0°30'42" WEST HIGHWAY BEARING) 386.66 FEET, MORE OR LESS, ALONG SAID WEST LINE TO THE POINT OF BEGINNING.

EXCEPTION PARCEL 2:

THOSE PORTIONS OF THE ABOVE DESCRIBED PROPERTY CONVEYED TO WILLIAM B. WOOLF BY WARRANTY DEED RECORDED JUNE 9, 1999 AS ENTRY NO. 214947 IN BOOK 427 AT PAGE 134 OF THE OFFICIAL RECORDS, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT THAT IS SOUTH 89°33'19" WEST 2496.785 FEET ALONG THE SECTION LINE FROM THE NORTHEAST CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE SOUTH 12°48'31" EAST 292.39 FEET; THENCE SOUTH 24°02'26" EAST 142.37 FEET; THENCE SOUTH 33°47'10" WEST 38.17 FEET; THENCE SOUTH 70°51'32" WEST 143.50 FEET; THENCE SOUTH 89°33'19" WEST 358.65 FEET; THENCE NORTH 00°05'38" EAST 493.66 FEET; THENCE NORTH 89°33'19" EAST 391.81 FEET TO THE POINT OF BEGINNING.

OVERALL AS-SURVEYED BOUNDARY DESCRIPTION GOLF COURSE PARCEL

LOCATED IN THE NORTHEAST QUARTER (NE 1/4) OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN, HIDEOUT, WASATCH COUNTY, UTAH MORE PARTICULARLY DESCRIBED AS FOLLOW:

BEGINNING AT A POINT ON THE NORTH LINE OF SAID NE ¼, SAID POINT BEING SOUTH 89°33'19" WEST 1778.80 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 17 AND RUNNING THENCE S00°03'56"E 877.49 FEET; THENCE S89°28'38"W 615.43 FEET TO THE NORTHERLY RIGHT OF WAY LINE OF STATE HIGHWAY 248; THENCE ALONG SAID NORTHERLY RIGHT OF WAY LINE N52°27'12"W 624.94 FEET; THENCE N89°33'19"E 357.96 FEET; THENCE N70°51'32"E 143.50 FEET; THENCE N33°47'10"E 38.17 FEET; THENCE N24°02'26"W 142.37 FEET; THENCE N12°48'31"W 292.39 FEET TO SAID NORTH LINE OF THE NE ¼ OF SECTION 17; THENCE ALONG SAID NORTH LINE N89°33'19"E 717.98 FEET TO THE POINT OF BEGINNING.
CONTAINS 15.14 ACRES IN AREA

TITLE COMMITMENT 1 EXCEPTION NOTES:

EXCEPTION 10 - A POWER LINE EASEMENT AS DISCLOSED IN THAT CERTAIN RECORD OF SURVEY, DATED SEPTEMBER 13, 1993, BY MCM ENGINEERING, FILED OCTOBER 12, 1993, AS FILE NO. 145, IN THE WASATCH COUNTY RECORDER'S OFFICE.

SURVEY FINDINGS: AS SHOWN AND LABELED ON THIS SURVEY.

EXCEPTION 11 - NOTICE OF RESTRICTIVE EASEMENT TO WILLIAM WOOLF, AN EASEMENT RESTRICTING HEIGHT OF STRUCTURES. SAID RESTRICTION PROVIDES THAT NO BUILDING OR STRUCTURE OF ANY KIND WILL BE PERMITTED TO EXCEED TWENTY (20) FEET IN HEIGHT FROM EXISTING GRADE UPON THE LOWER PORTION OF THE RESTRICTED PROPERTY KNOWN AS LOT 2B, WITHOUT THE PRIOR WRITTEN CONSENT OF THE GRANTEES OR THEIR SUCCESSORS AND ASSIGNS. EXISTING GRADE IS AS IDENTIFIED ON THE MAP CREATED BY DOMINION ENGINEERING IN APPROXIMATELY DECEMBER 1997 FOR THE MASTER PLAN APPROVED BY WASATCH COUNTY THE SAME DATE FOR THE JORDANELLE. SAID EASEMENT RECORDED JUNE 9, 1999, AS ENTRY NO. 214950, IN BOOK 427, AT PAGE 156, WASATCH COUNTY RECORDER'S OFFICE

SURVEY FINDINGS: AFFECTS ALL OF SUBJECT PARCEL.

EXCEPTION 12 - GRANT OF EASEMENT FROM THOMAS E. GILTNER AND ELIZABETH L. GILTNER TO WILLIAM WOOLF, RECORDED JUNE 9, 1999, AS ENTRY NO. 214951, IN BOOK 427, AT PAGE 158, WASATCH COUNTY RECORDER'S OFFICE.

SURVEY FINDINGS: AFFECTS ALL OF SUBJECT PARCEL.

EXCEPTION 13 - GRANT OF LIMITED DURATION EASEMENT FROM THOMAS E. GILTNER AND ELIZABETH L. GILTNER, GRANTORS TO WILLIAM WOOLF, GRANTEE, RECORDED JUNE 9, 1999, AS ENTRY NO. 214952, IN BOOK 427, AT PAGE 160, WASATCH COUNTY RECORDER'S OFFICE. SAID EASEMENT SHALL BE FOR THE BENEFIT OF GRANTEE ONLY AS LONG AS THE ORIGINAL DRIVEWAY TO LOT 2A IS IN EXISTENCE IN ITS ORIGINAL FORM.

SURVEY FINDINGS: AS SHOWN AND LABELED ON THIS SURVEY,

EDM Partners LLC
2815 East 3300 South, Salt Lake City, UT 84109
(801) 305-4670 www.edmpartners.com

SCALE: 1" = 100'
0 50 100 200 300

CLIENT:

OTTO - WALKER ARCHITECTURE

LOCATION:

ALTA/NSPS LAND TITLE SURVEY
PARCEL NUMBER 20-8164, LOCATED IN THE NORTHEAST QUARTER (NE ¼), TOWNSHIP 2 SOUTH, RANGE 5 EAST SALT LAKE BASE AND MERIDIAN, HIDEOUT, WASATCH COUNTY, UTAH

10/20/2023
FOR REVIEW
DO NOT FILE SURVEY

ALTA/NSPS LAND TITLE SURVEY

DRAWN BY: TEJ
REVIEWED BY:
REVISIONS:
No. DATE REMARKS

DATE: OCTOBER 2023

SHEET NUMBER: 1 OF

C:\Users\jdenson\EDM Partners Dropbox\Projects\Otto Walker Hideout\Survey\Ground\Annotated ALTA.dwg

EXHIBIT "B"

DEED RESTRICTION

EASEMENT FOR PARCEL 2B - PROPERTY ADJACENT TO SR248

DRAFT

Item # 2.

00214550 Bk 00427 Pg 00156-00157
WASATCH CO RECORDER-ELIZABETH M PARCELL
1999 JUN 09 14:41 PM FEE $13.00 BY MWC
REQUEST: HIGH COUNTRY TITLE

When recorded return to:
High Country Title
P.O. Box 714
Park City, Utah 84060

NOTICE OF RESTRICTIVE EASEMENT

NOTICE IS HEREBY GIVEN that THOMAS E. GILTNER and ELIZABETH L. GILTNER as Grantors hereby create and grant to WILLIAM WOOLF as Grantee and his devisees, assignees, heirs and all successors in interest perpetually an EASEMENT an easement restricting height of structures over, across and covering a portion of real property known as Lot 2B situated in Summit County, Utah, more particularly described as:

> Commencing at the Northeast corner of Section 17, Township 2 South Range 5 East, Salt Lake Base and Meridian; thence along the North line of said Section 17, South 89°33'19" West a distance of 1778.805 feet; thence South 00°03'55" East a distance of 877.49 feet; thence South 89°28'38" West a distance of 444.35 feet to the point of the beginning; thence South 89°28'38" a distance of 180.01 feet more or less to the Easterly highway right of way line; thence following said Easterly right of way line North 51°58'58" West 618.46 feet; thence leaving said right of way line North 89°33'18" East 358.65 feet; thence North 70°51'31" East 4.0 feet; thence South 38°29'21" East 489.78 feet to the point of beginning.

Said Restriction shall be for the benefit of the following described property known as Lot 2A owned by the grantees located in Summit County, State of Utah and more particularly described as follows:

> Beginning at a point that is South 89°33'19" West 2496.785 feet along the section line from the Northeast corner of Section 17, Township 2 South Range 5 East, Salt Lake Base and Meridian; thence South 12°48'31" East 292.39 feet, thence South 24°02'26" East 142.37 feet; thence South 37°47'10" West 38.17 feet; thence South 70°51'32" West 143.50 feet; thence South 89°33'19" West 358.65 feet; thence North 00°05'38" East 493.66 feet; thence North 89°33'19" East 391.81 feet to the point of beginning.

Said Restriction provides that no building or structure of any kind will be permitted to exceed twenty (20) feet in height from existing grade *upon the lower portion* of the restricted property known as Lot 2B, without the prior written consent of the grantees or their successors and assigns. Existing grade is as identified on the map created by Dominion Engineering in approximately December 1997 for the Master Plan approved by Wasatch County the same date for the Jordanelle.

IN WITNESS WHEREOF Grantors execute this 8 day of June, 1999.

THOMAS E. GILTNER _____ Thomas E. Giltner

ELIZABETH L. GILTNER _____ Elizabeth L. Giltner

STATE OF UTAH)
) ss
COUNTY OF SUMMIT)

On the ____ day of May, 1999 appeared before me Mike W. Gilmer, known to me to be such, who being duly sworn did swear that he signed the foregoing Notice of Restrictive Easement by Power of Attorney for Grantors.

_____
NOTARY PUBLIC
Residing at:

PAGE (●) INDEX ( ) ABSTRACT ( ) PLAT (✓) CHECK ( )

156

157

STATE OF Florida)
(ss.
COUNTY OF Manatee)

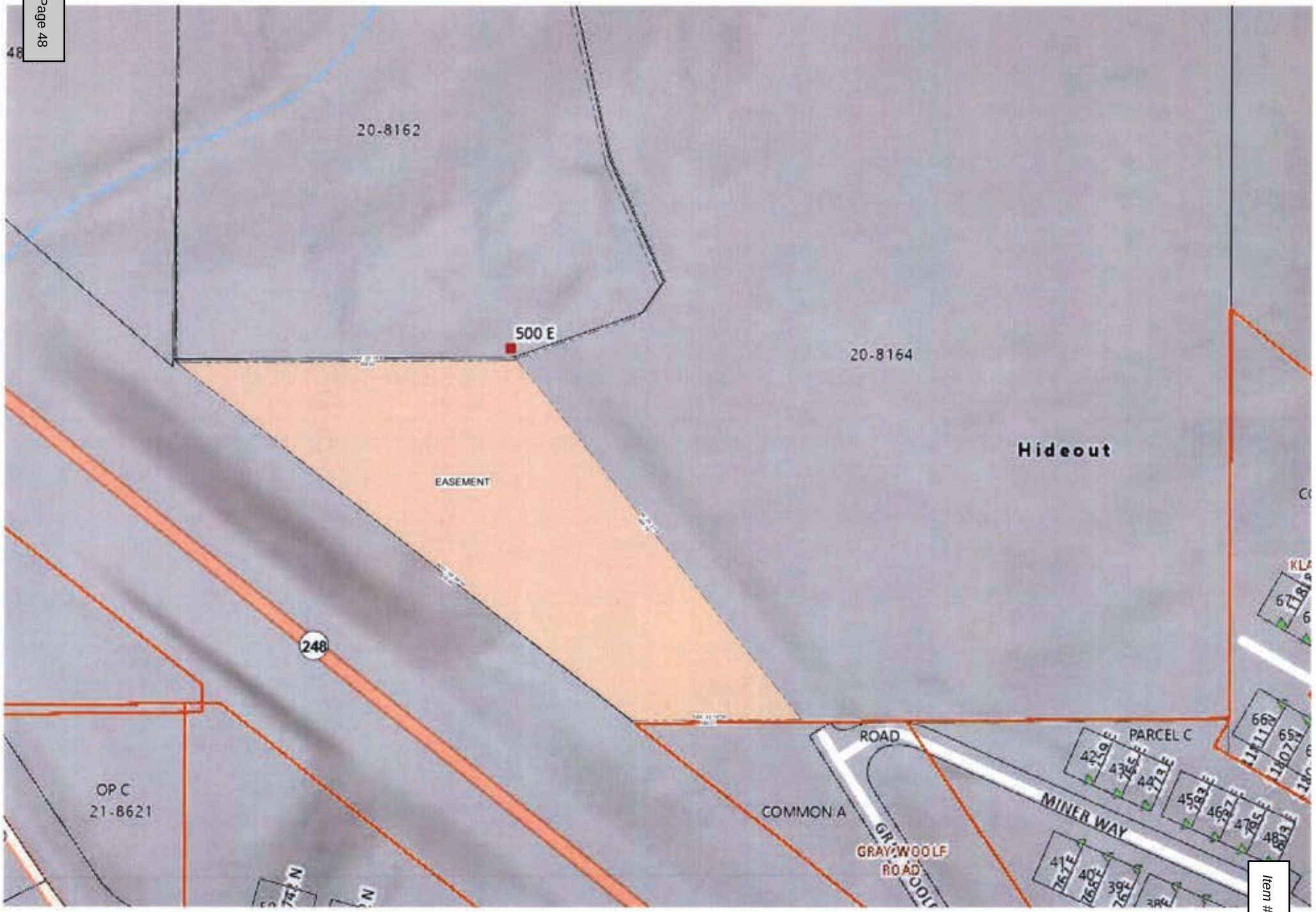
On the 8th day of June, 1999 A.D., personally appeared before me Thomas K. Giltner and Elizabeth L. Giltner, the signer(s) of the within instrument, who duly acknowledged to me that they executed the same.

FL D/L G435-825-27-087-0 + FL D/L G435-232-29-502-0

Nancy K. Steele
Notary Public NANCY K Steele

Nancy K Steele
My Commission CC575198
Expires Aug. 08, 2000

00214950 Bk 00427 Pg 00157


20-8162
500 E
20-8164
Hideout
EASEMENT
248
OP C
21-8621
COMMON A
ROAD
GRAYWOOLF
ROAD
MINER WAY
PARCEL C

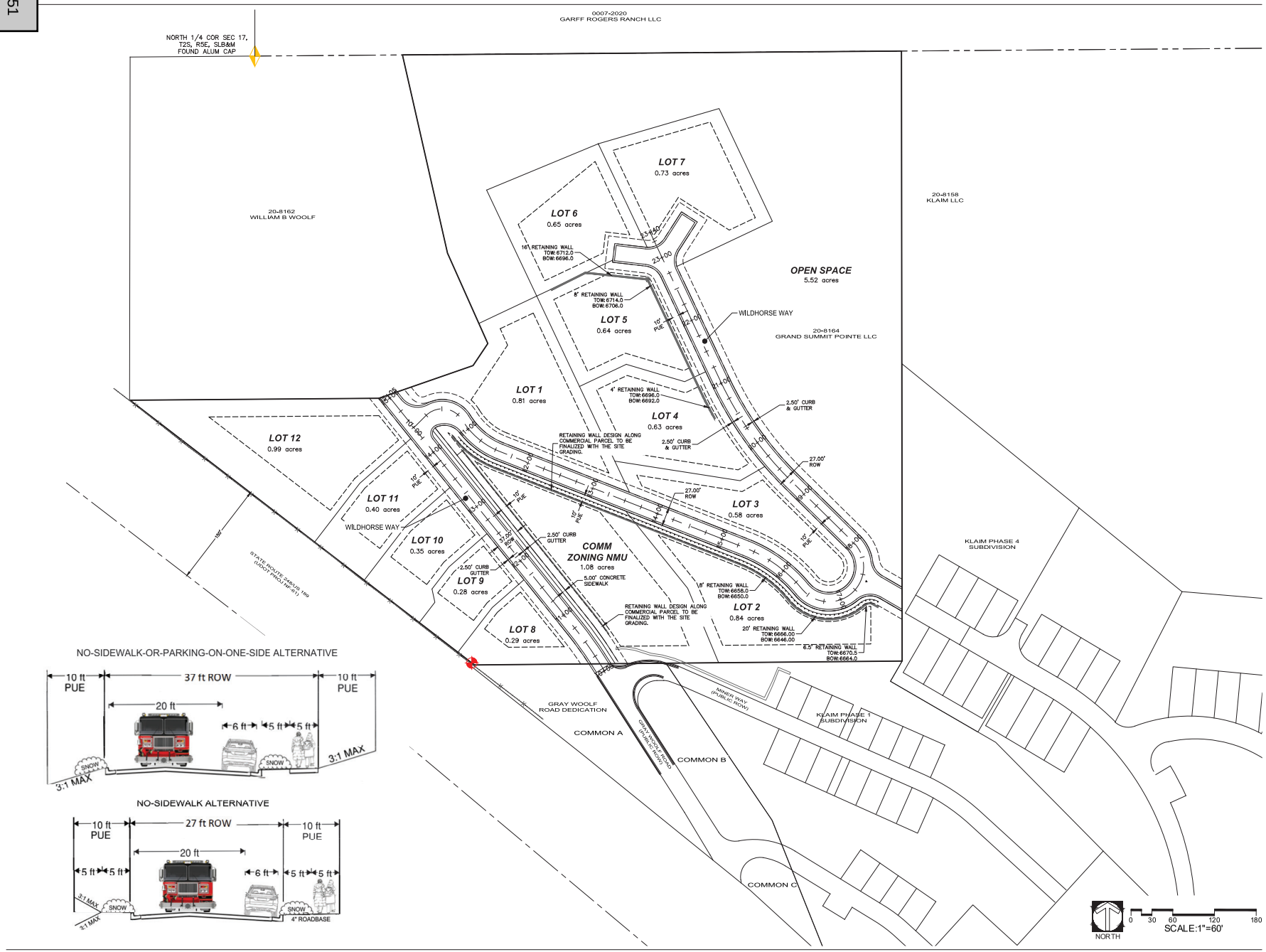
WOOLF

He Restriction Easement

EXHIBIT "C"

MASTER CONCEPT PLAN (UPDATED)

DRAFT



HIDEOUT - WILDHORSE

MULHOLLAND DEVELOPMENT SOLUTIONS
kristian@mulholland-development.com
P.O. BOX 680925
PARK CITY, UTAH 84068
435.901.2340 (c)

CONCEPTUAL

DATE:	July 11, 2025
DESIGN BY:	KJM
DRAWN BY:	BRC
REVIEW BY:	
PROJECT NO:	HIDEOUT
ISSUE:	CONCEPTUAL
REVISIONS:	

SHEET TITLE:
WILDHORSE CONCEPT PLAN

SHEET NUMBER:
EXH

Item # 2.

EXHIBIT "D"

SLOPE MAP WITH MAXIMUM BUILDING ENVELOPES ON SLOPE MAP & AREAS TO REMAIN UNDISTURBED

DRAFT

Slopes Table			
Number	Minimum Slope	Maximum Slope	Color
1	0.00%	30.00%	
2	30.00%	36.00%	
3	36.00%	40.00%	
4	40.00%	100.00%	

NOTE:

MAXIMUM SITE DISTURBANCE OF 66% FOR EACH BUILDING ENVELOPE AND NO DISTURBANCE TO THE OPEN SPACE LAND.

HIDEOUT - WILDHORSE

MULHOLLAND DEVELOPMENT SOLUTIONS
kristian@mulholland-development.com
P.O. BOX 680925
PARK CITY, UTAH 84068
435.601.2540 (c)

LICENSED PROFESSIONAL ENGINEER
No.5249227
KRISTIAN J. MULHOLLAND
6/13/2025
STATE OF UTAH

DATE:	June 13, 2025
DESIGN BY:	KJM
DRAWN BY:	BRC
REVIEW BY:	
PROJECT NO:	HIDEOUT
ISSUE:	CONCEPTUAL
REVISIONS:	

SHEET TITLE:
WILDHORSE
SLOPE MAP & AREAS
TO REMAIN UNDISTURBED

SHEET NUMBER:
EX

path: D:\RDS Projects\Projects\17_Hideout - Wildhorse\6_Exhibits\
Name: Hideout Wildhorse Subdivision Sketch Plan.dwg | plotted on: June 13, 2025 | plotted by: Ron

EXHIBIT "E"

CONCEPTUAL DRAINAGE AND UTILITY PLAN

DRAFT

0 30 60 120 180
SCALE: 1"=60'

NORTH

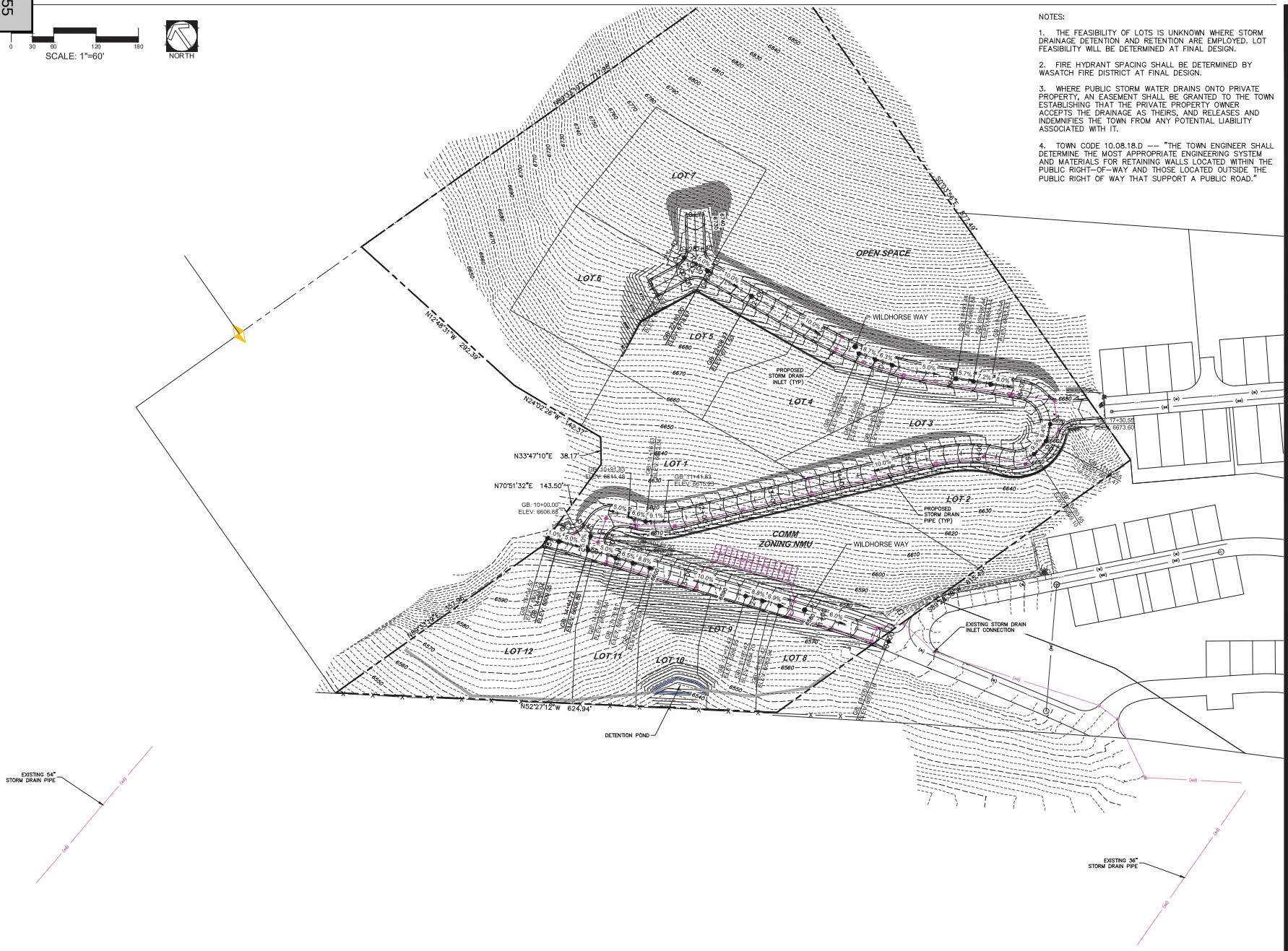
NOTES:

1. THE FEASIBILITY OF LOTS IS UNKNOWN WHERE STORM DRAINAGE DETENTION AND RETENTION ARE EMPLOYED. LOT FEASIBILITY WILL BE DETERMINED AT FINAL DESIGN.

2. FIRE HYDRANT SPACING SHALL BE DETERMINED BY WASATCH FIRE DISTRICT AT FINAL DESIGN.

3. WHERE PUBLIC STORM WATER DRAINS ONTO PRIVATE PROPERTY, AN EASEMENT SHALL BE GRANTED TO THE TOWN ESTABLISHING THAT THE PRIVATE PROPERTY OWNER ACCEPTS THE DRAINAGE AS THEIRS, AND RELEASES AND INDEMNIFIES THE TOWN FROM ANY POTENTIAL LIABILITY ASSOCIATED WITH IT.

4. TOWN CODE 10.08.18.D -- "THE TOWN ENGINEER SHALL DETERMINE THE MOST APPROPRIATE ENGINEERING SYSTEM AND MATERIALS FOR RETAINING WALLS LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY AND THOSE LOCATED OUTSIDE THE PUBLIC RIGHT OF WAY THAT SUPPORT A PUBLIC ROAD."



HIDEOUT - WILDHORSE

MULHOLLAND DEVELOPMENT SOLUTIONS
kristian@mulhollandsdevelopment.com
P.O. BOX 680605
PARK CITY, UTAH 84068
435.901.2940 (c)

CONCEPTUAL

DATE:	July 11, 2025
DESIGN BY:	KJM
DRAWN BY:	BRC
REVIEW BY:	
PROJECT NO:	HIDEOUT
ISSUE:	CONCEPTUAL
REVISIONS:	

SHEET TITLE:
WILDHORSE
CONCEPTUAL
DRAINAGE PLAN

SHEET NUMBER:
SP-0

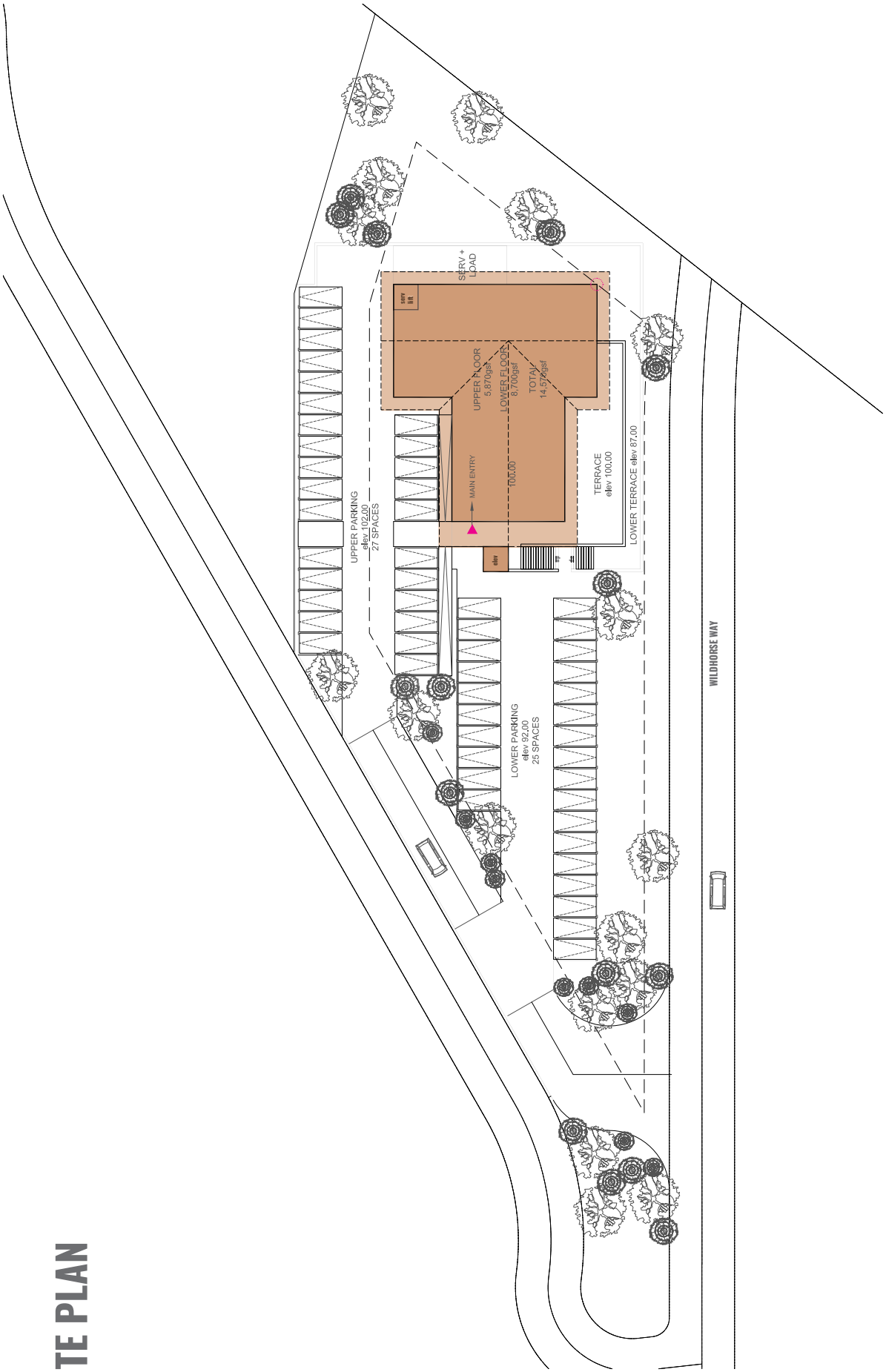
path: C:\Users\Owner\ARES Dropbox\Projects\17 Hideout_Wildhorse\01 Design\
file name: Wildhorse Site Review 1.dwg date/time: July 11, 2025 1:46:46 PM by: Owner

EXHIBIT "F"

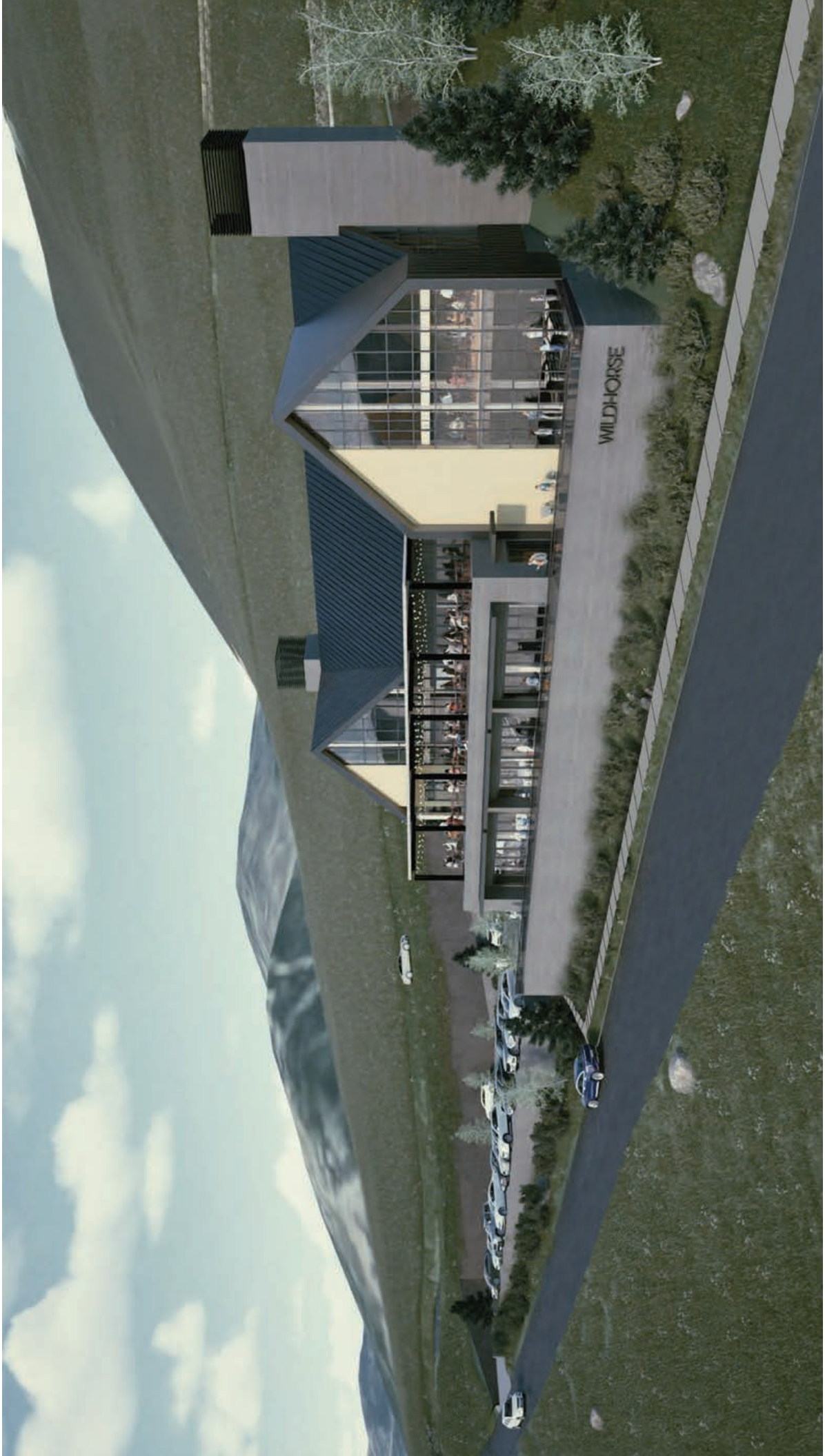
CONCEPTUAL COMMERCIAL SITE PLAN AND CONCEPTUAL RENDERING

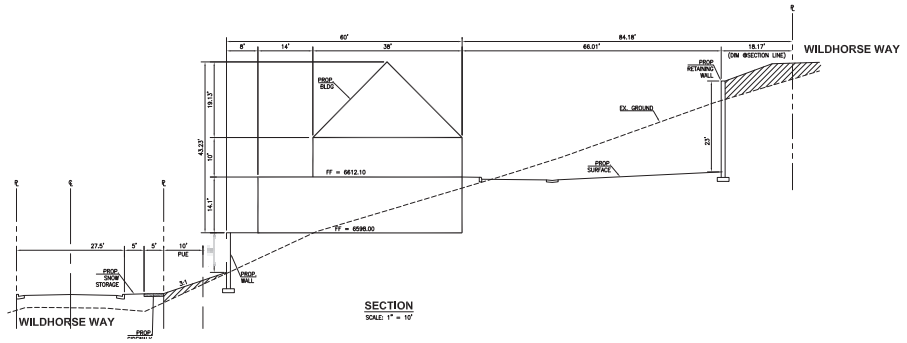
DRAFT

Item # 2.



SITE PLAN


WILDHORSE



SECTION
SCALE: 1" = 10'

NO.	DATE	REVISIONS	APPR.	DATE

DRAWN BY: TDD DATE: 05/07/25
DESIGNED BY: TDD DATE: 05/07/25
CHECKED BY: DW DATE: 05/07/25

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CRYLEN@OME.COM

WILDHORSE PROVISIONS
APPROXIMATELY 600 EAST HWY 248
HIDEOUT, UTAH

SITE SECTIONS

PLAN CHECK NO.
PROJECT NO. –
SHEET C2 OF C3

JOB NO. 227012935

WILDHORSE

Retaining Wall Construction

Wildhorse Commercial – Landscaped Exposed Natural Rock

Precedent Imagery

EXHIBIT "G"
PHASING SCHEDULE

Development Component	Commencement	Completion
Infrastructure	June 30, 2026	December 31, 2027
Wildhorse Commercial	September 30, 2026* No building permits shall be issued for the villas until the Commercial is complete.	Within 24 months of issuance of the building permit.*
Wildhorse Villas	June 30, 2027**	December 31,2029
Wildhorse SF Residences	March 30, 2027	Variable based upon lot sales and construction timing

Commented [PM12]: Discussion point. Staff recommends having guardrails to make sure the commercial gets completed prior to the developer getting the extra density.

Commented [PM13R12]: Complete is defined in 1.5. The intent is to find a trigger point where the commercial will be completed in a timely manner.

* The provisions for commencement and completion of Wildhorse Commercial are set forth in Section 1.5(e), which is incorporated by reference and controls in the event of any ambiguity between the aforementioned section and Exhibit H.

** Developer may commence the Wildhorse Villas prior to June 30, 2027, if the Commercial is complete and subject to meeting the requirements for application approval or permitting under the HMC.

* Any deviations from this Phasing Schedule greater than six months, must be approved by the Town Council.

DRAFT

EXHIBIT "H"

COPY OF PLANNING COMMISSION RECOMMENDATION FOR REZONING

Being Revised/Updated

DRAFT

EXHIBIT "I"

COPY OF TOWN COUNCIL RESOLUTION INCLUDING THE FINDINGS OF FACT, CONCLUSIONS OF LAW, AND CONDITIONS OF APPROVAL

Being Revised/Updated

DRAFT

EXHIBIT "J"
DESIGN AND ARCHITECTURE GUIDELINES

Being Revised/Updated

DRAFT

Wildhorse Estates

Design Guidelines

10/2/2025

WILDHORSE

The information herein is based on research by Wildhorse Estates development. We do not guarantee its accuracy and reserve the right to change any of the information without notice. Illustrations and renderings are artist's conceptions, are general in nature and are not intended to show specific or final work product.

Photographs used throughout show specific architectural style elements only and are not intended to depict complete or final home examples.

These materials are the property of Wildhorse Estates. These materials may not be copied, reproduced, scanned, altered, redistributed to a 3rd party, or used in any way, nor may they be used for any purpose by any person without the permission of Wildhorse Estates.

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January 2025

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Wildhorse Estates

DESIGN OBJECTIVES

Design Objectives for Wildhorse Estates

In Wasatch County, approximately 40 miles east of Salt Lake City along Highway 248, there's an environment where the natural beauty cannot be ignored. Situated with a view of the magnificent Wasatch Mountain range and Jordanelle Reservoir, you quickly realize this is an ideal lifestyle for anyone looking for a place to create a legacy home and reconnect with nature and loved ones.

Wildhorse Estates is a special place that allows individuals and families to get the most out of life and experience all that nature has to offer within an exclusive gated community. With seven estate lots and up to five villas or cottage units on over 15 acres, each home enjoys expansive views and spacious surroundings. This provides the freedom to enjoy the world around you, something so many communities are missing today.

You'll discover adventure all around, viewing the wildlife and habitat of the Rocky Mountains, within a community that embodies the harmony and delicate balance of nature. Wildhorse Estates provides the opportunity to create a custom home with a lifetime of memories to cherish.

Design Objectives for Wildhorse Estates

Wildhorse Estates is located in Wasatch County, between Park City and Heber Valley. The immediate setting of this intimate community has a topography featuring natural open space and canyons. The Wasatch Mountains provide a dramatic backdrop. The objective of Wildhorse Estates is to create a community that captures the ideas of elevated pastoral living within an elegant enclave while preserving the natural surroundings and views. Lot sizes are generous, ranging from 0.50 acres to 2.23 acres and residential housing types are varied. The area is designed with respect to the natural topography and views to the surrounding natural canyons and hillsides.

Design Objectives for Wildhorse Estates

Wildhorse Estates Mission Statement

Neighborhoods can have a special quality that makes them appealing to live in and memorable to visit. Whether new, centuries or decades old, these neighborhoods have a timeless value as they retain their character and appeal in a world of change. What makes them so unique and durable?

Timeless neighborhoods and developments seem to have several common characteristics that give them lasting charm and grace:

- Their architecture is consistent, yet allows for subtle individual expression;
- They have a limited range of building materials that expresses their inner beauty and quality;
- They are designed with care and attention to detail.

In older communities, these characteristics evolved naturally – architectural practices were learned locally, a limited range of building materials were available nearby, and there was a strong tradition of formal street trees, and stately landscapes.

However, in today's mobile world, these constraints no longer occur naturally - we can obtain any building material from anywhere in the world, a designer can emulate any architectural style, and landscapes are generally an afterthought. The unfortunate result is that many neighborhoods are often a hodge-podge of individual architectural styles, materials and landscapes rather than a cohesive neighborhood. In their enthusiasm to innovate, to be "creative", many developments have created communities that lack neighborhood identity, comfort and appeal.

Wildhorse Estates is committed to creating an elevated community of custom homes that will be defined and discussed in these design guidelines.

Design Objectives for Wildhorse Estates

In Wildhorse Estates, we have the opportunity to start afresh. We have the opportunity to design homes and a community that bring about a traditional sense of community and capture the grace, individuality and compatibility of a truly livable and memorable place. To achieve this, we have adopted these design guidelines that will assure a basic consistency to the Wildhorse Estates neighborhood with an updated mountain transitional feel. These Design Guidelines will ensure a cohesive neighborhood characterized by:

- An appropriate fit of the house to the lot and to the adjacent homes.
- Elevated Architectural elements
- Materials of permanence and quality such as walls of stone, divided lite windows, stone veneers, wrought iron fences and metal roofs.
- A lush native landscape setting that will accent and blend Wildhorse Estates homes into a unified neighborhood.

At Wildhorse Estates, our goal is to achieve a level of overall architectural unity that will allow variety and individual expression. It is also our intent to avoid incompatible architectural and landscape styles that will diminish the value of adjacent properties. The guidelines are few and relatively simple and still leave latitude in the design of individual homes. Further, variations to these guidelines may be considered on a case-by-case basis at the discretion of the Wildhorse Estates Design Review Committee (WDRC), if designs are demonstrated to be compatible with the overall Wildhorse Estates image.

Wildhorse Estates

DESIGN Guidelines

RESIDENTIAL ARCHITECTURE INTRODUCTION

Throughout the planning of Wildhorse Estates, the underlying design philosophy has been to create a community of character and quality that reflects the context of the region; the grandeur of the Wasatch Mountain range, and the pristine wildlife areas. The design character of Wildhorse Estates will be one of continuity, individuality, and compatibility.

The purpose of these architectural guidelines is to provide design direction for the integration of good architectural site planning techniques, well defined architecture and landscape principles.

This section will cover Architectural Design Core Criteria; Fit on the Lot, Roof Forms and Massing, Materials and Color, and Master Developer designated Architectural Styles.

When all of the design elements are implemented holistically, Wildhorse Estates will reflect the rich resources of the land and will maintain the integrity of its design theme.

Therefore, all builders and homeowners in this community will be required to meet the intent of the Wildhorse Estates Design Guidelines by employing these methods as contained herein and which may be amended from time to time at the sole discretion of the WDRC.

1. ARCHITECTURAL STYLES

1.1 A Touch of Mountain Charm.

Buyers must design homes with a more contemporary mountain home residential style; which has been defined into three overarching concepts:

- Mountain Transitional
- Mountain Farmhouse
- Mountain Modern

These styles of homes were chosen for their unique and timeless qualities as well as their site and massing qualities. Additional style descriptions and characteristics of each of the above styles can be found in Appendix 1.

In order to achieve diversity and interest in the Wildhorse Estates, builders are required to design elevations and floor plans specifically for this project and with this style in mind.

Styles Not Permitted

Dated styles or styles associated with distinctive climatic conditions such as:

- Adobe or Southwestern
- Spanish or Mediterranean
- Traditional heavy timber mountain
- Log Homes
- Colonial
- Victorian
- Traditional

or homes with geometric or free-form shapes, such as:

- "A" Frames
- Domes
- Barrel Vault
- Earth Integrated Homes

EXAMPLES OF STYLES TO AVOID

A Frame - No

All Brick Home - No

Adobe - No

French Chateau - No

High Pitch Roof - No

Mediterranean Home - No

Design Guidelines for Wildhorse Estate

EXAMPLES OF STYLES TO AVOID

Single Story Ranch Home - No

Victorian Home - No

Mediterranean Home - No

2. "FIT" ON LOT

Zoning. Each lot owner should acquaint themselves and their home designer with the current requirements of this zone regulation. Over and above meeting design and building code requirements of the Town of Hideout, the Wildhorse Estates homes are required to also meet the following conditions:

2.1 **Appropriate Lot.** To enhance views, and meet the changes of terrain most appropriately it is important to select the proper plan for each lot selection.

2.2 **Setbacks and Lot Coverage.** Front, rear and side yard setbacks and lot coverage are established by the building envelope shown on the plat map for each lot. No part of the residential structure or accessory structure may extend beyond this envelope unless otherwise approved in writing and on final building plans by the WHDRC.

2.3 **Building Height**. Heights of all dwellings at Wildhorse Estates shall be governed by Town of Hideout building codes. (For Individual Lot Specifications, See Appendix 2.)

2.4 **Consolidation of Lots**. An owner may consolidate one additional adjacent lot to create a larger lot. This will require both WDRC and County approval (i.e., subdivision or lot line adjustment). Only one single family residence is permitted on a consolidated lot. Owner is required to complete and follow through with the process as outlined by the County code.

Lot Development Controls

Building envelope may be encroached by other lot issues that may impact layout and design.

2.5 **Building Sizes.** The maximum and minimum total building floor area for each lot is shown in Appendix 2.

2.5.1. **Upper Levels**. The total 2nd floor area of all homes may not exceed of the ground level footprint. The maximum height of any main structure is as provided for in 2.2 above.

2.5.2. **Basements or Walk Outs.** Full or partial basements or lower levels (as approved by the WDRC) are required for all single family detached homes.

2.6. **Finished First Floor Standards**. Each home and lot is to be evaluated as to "an appropriate fit of the house to the lot and the adjacent home". The owner and design professionals for each home must submit to the WDRC a finished first floor height elevation that includes a certification of the County's requirements for grading, storm drain, sewer and basement. The guiding principle for setting the grade on each home is to have minimum elevation change from the existing grade, while still providing proper drainage to storm water and retention areas. All drainage and dirt must be retained on the lot and kept from eroding onto adjacent lots. Final Elevation of the home and grading is always subject to final grade approval by the WDRC and Town of Hideout.

Walk Out Lower Level

Upper Level Proportion

3. Major Roof Elements

3.1 Roofs are major visual elements that contribute the strongest sense of an architectural unity and the dominant impact of a structure is the shape of the building and roof line. The roof form should be appropriate for each of the specific architectural styles found in these design guidelines.

3.2 Long uninterrupted ridge lines are strongly discouraged and will not be permitted unless the WDRC determines that other building elements make the ridge line less conspicuous.

3.3 Major roofs should be one of the following:

- Gable (including intersecting gable roofs);
- Partial and full Hip (and acceptable variations of Hip);
- Flat or Shed roofs;
  - Flat with stone or other covering, no black asphalt will be allowed on flat roofs without WDRC approval.

3.3.1. Roof types such as A frames, geodesic domes, barn-shaped or other extreme roof types are considered out of character and are prohibited.

Gable and Hip

Shed and Flat

All Hip

3.3.2. Major roofs should have a pitch of 4:12 to no more than 8:12. Flat roofs, up to a maximum of 30% of a structure's overall roof area, may be integrated into a residential structure. A minimum roof pitch of 2.5:12 may be allowed for certain architectural styles. (Exceptions are allowed for dormers, and other minor roof elements as approved by the WHDRC. See minor roof elements section 3.5.)

3.4. **Roof Materials.** Wildhorse Estates recommends metal, asphalt/architectural shingle, or slate roofing material. Wood surfaces may not be used on any building roof. The chosen major roofing material must be one of the following:

- Finishes without metal coatings or other finishes can be used.
  - Natural rusted metal
  - Zinc
  - Copper that will oxidize and turn bronze
  - Tern
- The following metals can be used for roof surfacing with Planning Commission approved of color and finish
  - Aluminum
  - Steel
- These different masonry tiles can be used as surfacing material with colors approved by WDRC.
  - Ceramic tiles
  - Slate
  - Concrete tiles
- Architectural grade asphalt - composition shingles are allowed but must not be reflective.
- All roof flashing colors must be harmonious with upper walls and roof. All types of barrel or S tiles, asphalt rolled roofing, or reflective metal surfaces is prohibited.

Any other roofing materials must be submitted for approval, which approval will be determined on a case-by-case basis at the sole discretion of the WDRC.

3.4.1.1 **Roof Colors.** Roof colors must be approved by the WDRC. No primary colors shall be permitted in roofing materials. The color of roofing materials shall be consistent with colors found in the environment and on the structure.

3.5. **Minor Roof Elements**

Minor roof features (dormers, porticos) must have a minimum pitch of 2.5:12 and may be as steep as 9:12 as long as roof is within height restrictions.

3.5.1 Acceptable dormer forms are:

- Gabled
- Hipped
- Flat/Shed

3.6. **Exterior Roof Metal.** All exterior metal (i.e., flashings, gutters, chimney surrounds, roof vents, plumbing vents, eaves, fascia and soffit) should be anodized aluminum or copper. Other metals such as brass, bronze, zinc, aluminum, Corten and copper may be considered on a case-by-case basis. Exterior metal materials and samples must be included with applications presented to WDRC. In any event, the color palette for exterior metals shall be earth tones including black, unless otherwise approved by WDRC.

3.7. **Chimney Termination.** Chimneys made of stone, wood, and stucco are permitted. All exposed factory metal chimney terminations must be screened by approved architectural elements (i.e., copper, stone or metal flues).

3.8. Fascia and Overhangs. Roofs should overhang walls a minimum of 18 inches, with roof overhangs less than these required minimums requiring WDRC approval. Fascia and overhangs must be a minimum of 12" deep with a minimum eave overhang of 24".

4. WALLS

4.1 **Wall Height.** Exterior walls visible from the street shall generally be one to one – and - a - half stories in height. That is, the massing of 1to 11/2 of the wall will not exceed 50% of the facade; the roof will extend down to at least the two - third point of the second story. This will require that the second story windows to be expressed as dormers, unless the main level is above a walk out lower level.

Exceptions to this rule will be:

- Gable end facades may extend to the ridge line.
- Relatively small sections of two - story walls will be permitted to provide variety to an elevation. As a guideline it is recommended that the two - story portion be no more than 25% of the front elevation, subject to WDRC approval.

4.2. **Colors**. Consistent wall materials and color schemes are important to the overall continuity at Wildhorse Estates. Continuity in use of wall material creates a sense of permanence and mass while allowing variety. To further this goal, the following criteria shall be met:

1. Each home shall have a minimum of 2- maximum of 4 colors (i.e., body color, trim, and two accent colors).
2. Individual color schemes must be appropriate to the architectural style, see Appendix 1. Colors in general should not be in harsh contrast or compete with the colors of the surrounding natural environment.
3. No adjacent home shall have the same color scheme.

4.3. **Materials.** Wildhorse Estates has selected some basic wall materials including stone, metal, wood siding, and batten siding with specifications and requirements regarding materials and colors. All materials and colors must be submitted for approval to the WDRC with final plan submission.

4.3.1. **Stone.** The structure (minus windows, doors and associated trim) must be built with a total minimum of 25% of approved stone on the exterior. Each side of the exterior elevations shall have a minimum of 20% coverage in stone.

- Stone must be natural quarried stone. Cultured stone, river rock and cobble stone is not permitted. Stone must be in the appropriate proportion and scale for the style and elements to which it is being applied.
- The stone and pattern used for each home must be submitted to the WDRC for approval at the time of final submission of the plans. Stone submittal should include a sample of the proposed stone and its installation technique, along with a picture and/ or brochure of stone type installed on a wall.
- A request to use a s tone material other than the "approved stones" must be accompanied by a sample 4' x 4' panel constructed on-site for review by the WDRC.

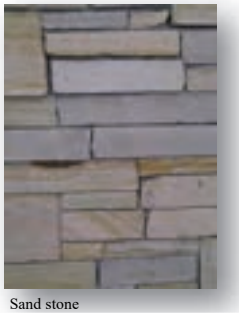
4.3.2. **Stone**. Only natural quarried stone is to be used. The foundation should be expressed as stone. A limited range of stone is consistent with the theme of Wildhorse Estates:

- Stone with soft edges.
- Stones should be mildly variegated (a mix of slightly varying colors, rather than monochromatic).
- Stone may be used for accent features such as a chimney tower, window trim, or as otherwise approved by the WDRC.
- Colors should be earth-tone, in the warmer ranges of tan, brown, gray and warm olive. Stone color must complement the overall color scheme of the home. Other stone colors may be considered but must be presented to and approved by the WDRC prior to installation.

4.3.3. **Board and Batten, Metal or Wood Siding.** These are permitted and may be used for wall and accent surfaces. Color and style should match and complement the architectural style of the home. Walls can be surfaced with up to three (3) different materials.

4.3.4. **Stucco.** Use of stucco will be limited to a small percentage of the material selection. No more than 25% of the total major, including footage of windows and doors, is permitted to be stucco. Stucco must be at least four feet above natural grade. Stucco colors and styles should match and compliment the style of the home. Stucco finish and color should be approved at the same time as plan and material approvals. Stucco selection must be submitted at the time of application for review by the WDRC.

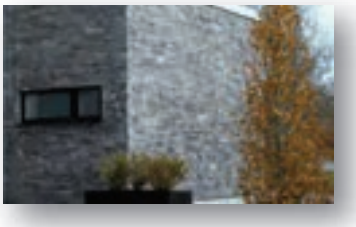
Stone Samples



Sand stone

Grey Ledger

Mix Stone Look



Grey Stone

4.4 **Materials Not Allowed.** Exterior wall materials not allowed in the Wildhorse Estates include:

- Log Siding or Chinking
- Adobe
- Fiber Cement Siding (eg- Hardie Board)
- Concrete block
- "Brick Look" or Veneers Cultured Stone
- Quoining
- Manufactured vinyl or aluminum siding

4.5. **Columns.** If there are columns on the residential façade, whether load-bearing or not, they should be timber, metal and/or stone. That is, they must look structural and sized as if they are actually supporting the structure above them (i.e., roof or balcony). Avoid overly slender columns that are obviously decorative.

4.6. **Continuity of Materials.** Materials should be continuous around outside corners. A change in materials cannot occur at an outside corner. Wall materials and trim should be continuous on all elevations.

4.7. **Foundations.** It is important to visually connect exterior wall material to the ground. Specifically, exposed concrete foundation shall be the minimum required.by code. No more than six vertical inches of exposed concrete foundation will be acceptable. When exposed, foundation should appear like stone.

4.8. **Exterior Trim and Accents.** It is required that all trim and accents be darker color complements to the earth tone colors required for the walls. All materials should be stained or semitransparent, or natural.

4.9. **Balconies and Pop-Outs.** Any projections away from the main wall that are not touching the ground must have corbels or haunches underneath to emphasize the visual aesthetic that the projection is supported. This visually shows support of these elements and ties them back to the building. Balconies or pop-outs without columns are limited to 3-1/2 feet deep unless specifically approved by the WDRC.

Commented [sf1]: Yes or no to timber columns?

Finished First Floor

5. Windows & Doors

5.1. **Windows.** Typically the location of windows is determined by the practical considerations of room layout, furniture placement, views, and privacy. Design emphasis here should be of particular concern as windows play an important role in the exterior architectural character of single family homes. Within the appropriate style requirements, group and coordinate windows with other design elements to create a composition and sense of order. All windows must be of wood construction or aluminum clad exterior wood construction. Vinyl windows are not allowed.

5.2. **Window Panes.** Divided lite windows (composed of small panes divided by mullions and muntins) are required on a minimum of 30% of the window area on the front elevation of the house and 20% on side elevations, and a maximum of 50% ofwindow area on rear elevations. ~~(or any elevation of the house visible from the street). An average of 30% of the total window area on all other elevations taken as a whole must be divided lite windows.~~ Divided lite window mullions and muntins shall be exterior to the glass (not sandwiched between glass surfaces). Muntins must have a contoured shape (not flat strips). Window frames must be at least 3 to 4 times the width of the muntins.

5.3. **Window Proportions.** All windows shall be proportioned to its respective elevations.

Slider Window

Casement – Arch Divided

5.4. **Recessed windows and doors** are encouraged to create shadows, give deeper relief to the facades, and suggest structural strength. Doors and Windows should be recessed 2" to 4" minimum from the exterior wall face. Surface mounting windows using a mounting flange is prohibited.

5.5. **Glazing Materials**. Standard low-e glazing (glass) is approved. Mirrored or bronzed, glass coating is prohibited. Stained glass and leaded windows must be approved by the WDRC.

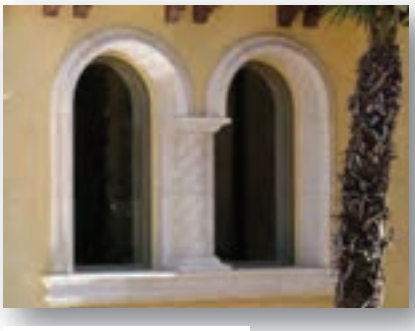
5.6. **Exterior Doors**. Main entry doors must be wood, metal or glass. Other door styles must be approved by WDRC

~~**5.7.** **Sills and Lintels**. Windows shall have wide sills (at least 8") and pediments of either cast concrete or stone to convey permanence. Heavy wood timber headers and sills are discouraged but may be approved on a case - by - case basis by WDRC.~~

5.8. **Shutters.** Exterior applied shutters are prohibited.

Not Allowed – Vinyl Windows

Not Allowed – White Windows



Not Allowed – Arch Windows

6. FENCING AND MAILBOXES

6.1. **Fences.** Property line fences are not allowed at Wildhorse Estates. Smaller fenced boundaries may be considered and will be approved on a case – by - case basis at the discretion of the WDRC

6.2. **Entry Columns.** Entry columns at driveways supporting gates shall be allowed only with approval by WDRC

6.3. **Mailboxes.** Wildhorse Estates will maintain and provide community clustered mailboxes. Individual mailboxes, parcel boxes, or newspaper boxes are not allowed.

6.4. **Decks/ Railings.** Wood, metal, glass, and some wood - like products may be used for these elements. Their use and design are subject to review and approval of the WDRC. All wood must be stained and sealed. Painted surfaces are not permitted. Vinyl railings are specifically prohibited and will not be considered.

Railing – Exterior Stone

Cedar Siding

7. GARAGE AND ACCESSORY STRUCTURES

7.1. Each home will have a private attached garage. Wildhorse Estates homes are required to have a minimum of 2-car garages and maximum 4-car garages. Entries to garages, where possible, shall be from a direction that is not exposed directly to the street. The home and front yard rather than the garage should be the primary emphasis of the front elevation. No more than 1/3 of garages (except swing-in) may be forward of architecture and may be no more than 10' in front of primary facade. All others must be recessed behind the primary front facade. No garage doors may be sited on rear 248-facing side of home

7.2. When siting or plotting the home on the site, refrain from strict compliance to minimum garage setbacks to avoid repetitious street scenes. Variable front yard setbacks are required, and variable side setbacks are encouraged. Typically, plans are to be reversed and plotted so that garages and entries are not adjacent to each other to create an undulating setback. Occasionally, this pattern should be interrupted to avoid monotony. Create attractive and comfortable street scenes and street space by de-emphasizing garages, implementing "architecture forward" and encouraging "comer-specific architecture."

7.3. Garage doors must incorporate the architectural style of the home. Garage doors must be custom doors. Doors may have windows, metal and real wood. Standard flat or paneled aluminum garage doors shall not be permitted.

7.3.1. Only one double bay garage door is allowed. Additional garage doors should each be single bay width or separated by a minimum of 18". Any exceptions to this provision must be included with the application to the WDRC and is subject to the WDRC's approval.

Garage

Detailed Garage

7.4. **Garage Door and Garage Wall Design Fundamentals.** Each home planned and constructed at Wildhorse Estates shall consider and address the following garage door fundamentals into the design of the home.

7.4.1. **Shallow-Recess Garages**. No shallow recess garage face is permitted to be less than 12" behind the architecture or full porch (porch depth minimum is 6'-0"). A recess amount of 2' is preferred.

7.4.2. **Mid to Full Recess Garage**. Create plans that place garages at varied depths on the home site.

7.5. **Swing-In Garage** For three - car garages, the swing-in or side entry format is preferred. Swing-in garages greatly reduce the impact of the garages on the streetscape by providing the appearance of a living area with an enhanced window treatment.

7.6. When a three-car or four-car garage is planned, the impact on the streetscape can be minimized by allowing the 3rd and 4th car bays to be arranged by offsetting garage spaces and by using one-car garage doors for each additional car entry. In the case of 3 or more garage spaces, only one double door will be allowed.

7.7. Recreational Vehicle and Boat Storage. All RV's and boats should be stored in an offsite facility. When a home site is large enough to accommodate a recreational vehicle or boat parking, these vehicles may be on site temporarilyy, defined as less than 24 hours.

Screened from street

Hidden from Street

7.8. **Parking**. Adequate parking must be provided within each individual parcel as parking on adjacent collector streets is not permitted. Guest parking must be accommodated on the lot/driveway.

Accessory Structures. Detached structures (garages, offices, workshops, green houses, pavilions, sheds, and pet enclosures, etc.) are not allowed. WDRC may consider individual requests under extreme circumstances.

8. MISCELLANEOUS ELEMENTS

Objective: To utilize site elements and details that are consistent with the Wildhorse Estates style and are appropriate in this mountain environment.

8.1 **Patio Furniture.** Exterior storage of patio furniture and outdoor living accessories in areas visible from off -site is allowed provided it meets the following requirements:

- If stored uncovered, the furniture is stored in the same locations as if it were in use.
- If stored with covers, the covers must be made from non-reflective material in dark, earth-tone colors.

Patio furniture and umbrella colors are to utilize subdued colors and shall be made of natural, high-quality materials when their location is visible from other residences or common areas. The WDRC reserves the right to reject any such items if it is deemed they are not consistent with the intent of these guidelines and the community's aesthetic objectives.

8.2 **Sculptures and Artwork**. Sculptures and Artwork are allowed in rear yard only. All sculptures and/or artwork visible from adjacent residences or common areas must be approved by the WDRC prior to installation. No reflective materials or bright colors will be allowed in areas visible from the common areas or adjacent lots. The final design submittal is to include detailed information on size, location, materials, colors, mounting details and lighting.

8.3 **Barbecues, Fire Pits and Heating Equipment.** Barbeques, Fire Pits and Heating Equipment are allowed in rear yard only Fire pits are to be permanently installed. Barbecues and heat lamps are to be built into walls or the overhead structures and be architecturally consistent with the residence. All equipment that is visible from other residences or common areas shall be non-reflective and have muted coloration.

8.4 **Water Features**
Water features should be built into the natural landscape and subject to approval as part of the landscape plan.

8.5 **Flagpoles, Antennae and Satellite Dishes.** Antennae and satellite dishes are subject to special review by the WDRC. They shall be installed so as not to be visible from any neighboring lot or common area. They shall be mounted in an inconspicuous manner, not located on ridgelines and painted or colored to match the adjacent background color to blend with the surrounding building. Freestanding flag poles are prohibited.

8.6 **Address Markers.** An address marker may be located at the entry to the lot. The address marker design shall be reviewed and approved by the WDRC prior to installation. Materials, color and design shall be consistent with the architectural character of the residence.

8.7 Exterior Recreation or Play Equipment. All exterior recreational or play equipment, such as swing sets, slides, play structures, jungle gyms and similar equipment, are prohibited.

8.8 **Basketball Hoops.** Basketball Hoops and backboards are prohibited.

9. **Exterior Holiday Decorations.** The intent of this section is not to discourage decorating for holidays, but to ensure a tasteful and high quality decoration that is befitting to Wildhorse Estates. Holiday decorations shall be subtle and tasteful. Decoration displays shall not have a commercial appearance and shall not be "overdone" in brightness, size or visibility from the common areas. The Association reserves the right to prohibit any holiday decorations it deems inappropriate for the image of the Wildhorse Estates community.

Although holiday lights are allowed, no chasing, twinkling or blinking lights will be allowed. No exposed spotlights will be allowed. Luminaires will be allowed on walls, along driveways and patios but not on roofs or parapets. Paper luminaires with candles are not allowed due to potential fire danger. No inflatables are permitted.

Exterior holiday music is not allowed except for personal and social enjoyment within the outdoor living spaces, (i.e., patios, terraces, etc.), provided it does not disturb other owners and is in compliance with all other provisions of the CC&R's.

Holiday decorations will only be allowed per Town of Hideout Ordinance.

ARE THESE GUIDELINES MORE OR LESS RESTRICTIVE THAN TOWN ORDINANCE? between November 15th and January 10th. All decorations must be removed by January 10th. Decorations for other holidays may be installed no more than two (2) weeks prior to the holiday and must be removed within one week after the holiday.

9. EXTERIOR LIGHTING

Wildhorse Estates is intended to be lighted adequately for safety and security. We desire to avoid bright, uncontrolled lighting that impacts adjacent residences or obscures the night sky. Light fixtures are highly visible elements that, if coordinated, can contribute to the overall character of the neighborhood at Wildhorse Estates. Exterior lighting is to be submitted and approved by WDRC with the Landscape Plan. All lighting must comply to Town of Hideout Dark Skies ordinance.

9.1. **Exterior Area Lighting**. Light sources that render near natural colors (such as LED with maximum 3000 K, or incandescent), are acceptable. Lights that cast a color (such as low-pressure sodium, high pressure sodium, or lights with colored filters) are not allowed.

9.1.1. Avoid visibility of light source. Fixtures for area lighting or highlighting buildings or landscape should be shielded so as to not allow the light source (bulb) to be visible from, or cast light on, public areas or adjoining properties. It is required that lights shine in an indirect manner.

9.1.2. Light fixtures must be integrated into the architectural design of individual residences and constructed of non -- reflective materials.

9.1.3. All exterior lighting shall be in compliance with Wasatch County Requirements, see section 16.21.16 of the Wasatch County Code.

Floodlights and lighting of whole building is NOT ALLOWED.

NOT ALLOWED: General, non-directional lighting that allows source to be visible

This illustrates an acceptable lighting method which is directional and controlled, concealing the light source.

10. SITE WORK AND LANDSCAPING

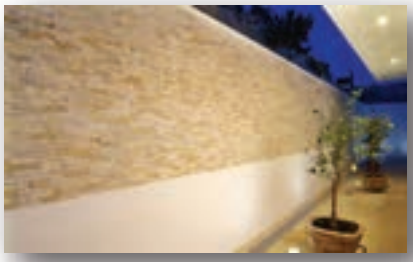
Wildhorse Estates should reflect a large percentage of its native landscape. Use of original vegetation, left undisturbed, is strongly recommended.

10.1. Retaining Walls. Retaining walls visible from any public area or from adjacent properties shall be one of the following: mortared stone or dry stacked (hidden mortar) stone. All stone must be natural. Cultured stone, concrete block and timber retaining walls are not acceptable. Retaining along major boulevards may not be more than 3' above or below the street. Board-formed concrete may be allowed with WDRC approval

10.2. Driveways. Driveways shall be one of the following:

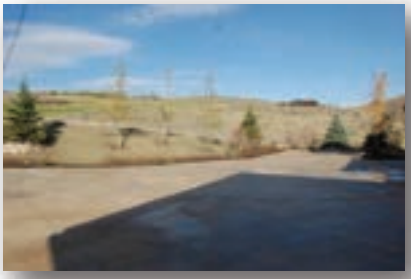
- Concrete unit pavers
- Colored or plain concrete (scored in panels of less than 100 sf)
- Textured, or stamped concrete
- Stone pavers
- Driveway materials pattern and color must be approved by the WDRC.
- Asphalt is not permitted.

10.3. Grading. Each lot shall be graded to continue drainage ways across the property and to match the grades of adjacent properties and public areas. Must meet Wasatch County standards: slopes 3:1 max or less. All drainage and dirt must be retained on the lot and kept from eroding onto adjacent lots.



Stack Stone – NEED TO REPLACE?

Stone Wall



10.4. **Landscape Design.** Landscape plans should be prepared by a licensed landscape architect or contractor and follow principles of sound, attractive landscape design. The overall objective is to maintain a native and natural landscape with appropriate plant materials. Manicured areas are fitting in the front of the home surrounding the porch, walk, and driveway areas as well as areas immediately adjacent to the rear porch. Several specific requirements are mandatory. See Appendix 3.

10.4.1. Trees, shrubs and ground covers must be from the approved plant list. See Appendix 3.

10.4.2. A ratio of at least 50% evergreen plant material must be used to create landscapes with both summer and winter character.

10.4.3. The tree budget should be a minimum of one half of the total landscape budget.

10.4.4. Automatic irrigation systems are allowed and should be designed to promote efficient water use and assure the ongoing health of plant material in accordance with the Wasatch County Water Conservation Guidelines. Irrigation of native areas is only allowed as long as needed to re-establish the natural landscape.

10.4.5. Keep home within appropriate proximity to native vegetation to prevent natural hazards.

Wildhorse Estates

REVIEW AND SUBMITTAL REQUIREMENTS

WILDHORSE

11. REQUIRED SUBMISSIONS

To achieve the foregoing objectives and principles, the Wildhorse Estates guidelines are intended to be used by:

- Property owners
- Architects/ Builders
- Landscape/lighting Architects

These Design Guidelines are binding upon all persons who desire to build at Wildhorse Estates to:

- Construct, refinish or alter any part of the exterior of any building;
- Make other improvements upon, under or above any property;
- Create, fill or make any changes in the existing surface, contour or drainage of the land; and/or install any utility line.

11.1. Design Review Committee. These guidelines will be administered by the WDRC, composed of professional designers and representatives of The Wildhorse Estates Design Review Committee.

11.2. Basement and Site Drainage Conditions. It is the owner's and contractor's responsibility to meet any and all of the State and County, as well as Wildhorse Estates', building requirements for basements and site drainage.

- All drainage must be directed to the street or retained on the lot and kept from eroding onto adjacent lots.

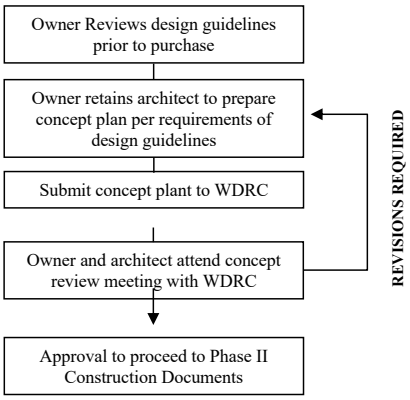
11.3. WDRC & Design Review. Wasatch County requires WDRC approval on the plans before accepting plans for City building permit review. The following process is designed to allow the homeowner and WDRC to reach agreement before significant expense has been incurred for detailed construction documents. The design review is a three phase process.

1. **Concept Design Review.** This phase assists the owner and their design team to understand the specific design requirements associated with the WDRC process.

2. **Construction Documents.** Upon successful completion of Phase I-Concept Design Review, the applicant can efficiently prepare construction documents for submittal to the WDRC and the County.

11.4. Phase I-Concept Design

11.4.1. Phase I-Review Steps



Phase I – Submittal Requirements

A. Site Plan @ l"= 10'or greater scale on clearly legible 8-1/2" x 11" Letter Size Paper must include the following:

1. Property boundaries
2. Building envelope
3. Easements
4. Building footprints
5. Hard surface areas (driveways, patios, decks, walks, and steps)
6. Retaining walls
7. General grading to include existing and proposed finished grades at 2' contours
8. Lot number and subdivision identification
9. Top of foundation and final grade elevations (in relation to top back of curb). Note elevation change for stepping foundation, walk-out basements, etc.
10. Note: Wasatch County specifies the building height requirement as based off of the native grade and not any grade changes made through the building process.

B. Elevations @ 1/8"= 1' or greater scale and must include the following:

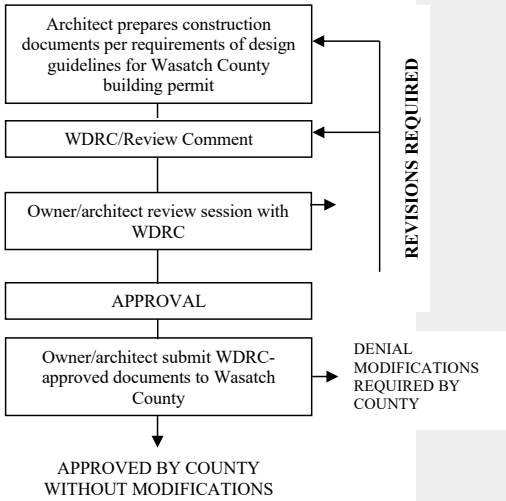
1. Exterior building materials (approximate representation and notes on drawings)
2. Heights of floors, ridge lines and eave lines
3. Window and door configurations
4. Dormers, skylights
5. Fences and walls
6. Front elevation must show height relationship of first floor to curb- on plot plans.

C. Building floor plans

D. Performance Bond

11.5. Phase II-Construction Documents

11.5.1. Phase III-Review Steps



Phase II – Submittal Requirements

A. All documents required for County Building Permit

B. Site Plan at 1”-10’ or greater scale and must include the following:

1. Property boundaries
2. Building envelope
3. Building footprints
4. Existing conditions (including 50’ adjacent to lot)

- Paving
- Light fixtures
- Walks and paths
- Curb and streets
- Vegetation
- Water feature(s)

5. General grading to include existing and proposed finished grades at 1’ contours.

C. Building floor plans at each level at ¼” = 1' or greater scale

D. Exterior elevations of all structures @ ¼” = 1' or greater scale and must include the following:

1. Materials rendered accurately
2. Spot elevations (main floor, ridgelines, eave lines, floors, etc.)
3. Exterior lighting plan

E. Landscape plan

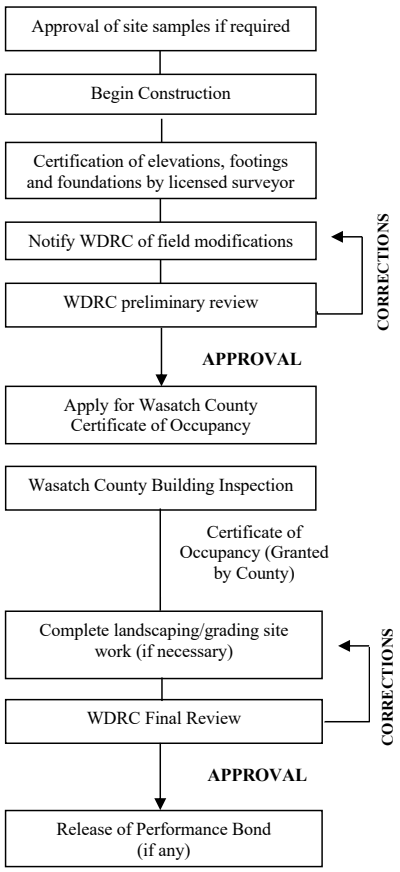
1. Plant materials at size within 10 years
2. Paving materials (walls, walkways, pools, patios, etc.)
3. Fences and walls
4. Exterior landscape lighting
5. Rocks and retaining walls

F. Material samples board and color rendering showing actual materials and mixture of colors (refer to example).

G. On site samples may be required by WDRC prior to approval.

Phase III – Residence Construction and Final Approval

Phase III – Review Steps



DISCLAIMER:

The Wildhorse Estates Design Review Committee is not responsible for reviewing, nor may its approval of any plan and or design be deemed approval of, any plan or design from the standpoint of structural safety or conformance with law. Each individual builder is responsible for all applicable permits and approvals from Wasatch County, and any other currently applicable agencies.

The Wildhorse Estates Design Review Committee reserves the right to waive or vary any of the guidelines set forth herein at its discretion. Furthermore, approval by the Wildhorse Estates Design Review Committee of any plans, drawings or specifications for any work done or proposed shall not be deemed to constitute a waiver of any right to withhold approval of any similar plan, drawing or specification subsequently or additionally submitted for approval. Failure to enforce any of the Design Guidelines shall not constitute

Wildhorse Estates

APPENDICES

WILDHORSE

Architectural Style Elements

APPENDIX 1

WILDHORSE

Mountain Transitional – Style Elements

TO BE CLEANED UP

Form

- Main gable roof with intersecting gable roofs
- Dormer windows
- Shed roof pop-out

Colors

- Medium to light body colors
- Light earth tone bodies with contrasting or white trims
- Light or dark color accents

Roof

- 3:12 to 8:12 roof pitch
- Front to back main gable roof
- 24" overhangs
- Corten or copper accent roofing
- 40-50 yr. architectural composition shingles with Dura-ridge brand or equivalent brand ridge shingles.

Walls

- Horizontal siding on elevation
- All siding should be natural wood.
- Full wrapped horizontal siding on elevation

Windows

- Vertical multi-paned windows and single hung windows at front elevations and in high visibility public view areas
- Built - up header trims at front windows
- Color and style appropriate windows

Details

- Porches with shaped wood-like columns & knee braces & arches
- Porches with wood-like railings
- Min. lx4 window and door trim
- Layered header trims at front elevation
- Shaped wood-like window and door trim
- Stone chimney wrap

Entries

- Usually a turned roof to give a focal point to the entry and with a front covered porch
- Enhanced roof with decorative wood post supports surrounded by a deep, wrap around covered porch

Entry Doors

- Panel door with added upper lights and detail surround

Garages

- Carriage door style
- Recessed shallow
- Upper lights and windows
- Recessed mid-full

C

Mountain Modern – Style Elements

Form
- Flat or shed roof with intersecting roof lines
- Dormer windows
- Shed roof pop-out

Colors
- Medium to light body colors
- Light earth tone bodies with contrasting or white trims
- Light or dark color accents

Roof
- 4:12 to 8:12 roof pitch
- Front to back main gable roof
- 24" overhangs
- Corten or copper accent roofing
- 40-50 yr. architectural composition shingles with Dura-ridge brand or equivalent brand ridge shingles.

Walls
- Horizontal siding on front elevation
- All siding should be stone, not stucco.
- Full wrapped horizontal siding

Windows
- Vertical multi-paned windows and single hung windows at front elevations and in high visibility public view areas
- Built - up header trims at front windows
- Color & style appropriate windows

Details
- Porches with shaped wood-like columns, knee braces and arches
- Porches with wood-like railings
- Stucco finish or horizontal siding wrapped chimney
- Min. lx4 window and door trim
- Layered header trims at front elevation
- Shaped wood-like window and door trim
- Stone chimney wrap
- Wood-like pot shelves

Entries
- Roof to give a focal point to the entry and with a front covered porch
- Wrap around covered porch

Entry Doors
- Panel door with added upper lights and detail surround

Garages
- Carriage door style
- Recessed shallow
- Upper lights and windows
- Recessed mid-full

Utah Mountain Contemporary – Style Elements

Form
- Refer to Style pages 11-12

Colors
- Wide range of light earth tones and contrasting trim
- Natural wood tones
- Wide range of medium to dark earth tones and contrasting trim

Roof
- Hip gabled, shed or flat roof design with boxed stucco soffits and one major cross gable or hip roof. May include shed roof forms on single story elements
- 2:12 to 8:12 roof pitch
- 36" overhangs
- Corten or copper metal accent roofing
- 40-50 yr. architectural composition shingles with Dura-ridge brand or equivalent brand ridge shingles

Walls
- Blending stone or siding w/ stucco
- Fine to light sand or light lace stucco finish
- Smooth stucco finish

Windows
- Vertical windows at first floor, vertical and/or banded or ganged horizontal windows at second floor
- Color and style appropriate windows
- A wide variety of mullion patterns allowed

Details
- Dominant covered entry element with stone columns base
- Broad flat chimney with detail
- Architectural elements that express the structure should be stockier
- Stone/ metal accents
- Substantial entry element
- Trim detailing around entry doors & windows
- Triangulated knee braces
- Exposed drafter tails
- Step up full porch
- Substantial glazing elements w/ enhanced trim
- Balcony w/ wood railed edge

Entries
- Long, horizontal, hipped roof treatment.
- Large square columns.
- Horizontal shingle or lap siding.
- Some stone accents
- Extensive use of horizontal stone.
- Large square or tapered columns

Entry Doors
- Horizontal orientation of surface material.
- Flush horizontal trim boards
- Upper square lights and decorative hardware

Garages
- Horizontal orientation of surface material and carriage door style panel detailing
- Horizontal glass pattern in the upper glass lights.
- Horizontal wood trim boards

Lot Data and Maps

APPENDIX 2

WILDHORSE

Appendix for Wildhorse Estates

SITE Lot Size		
LOT #	SQ. FT.	ACRES
1	30,657	0.70
2	33,885	0.78
3	36,908	0.85
4	21,784	0.50
5	22,345	0.51
6	22,199	0.51
7	22,501	0.52
8	96,922	2.23
Parcel C/D	169,295	3.89
Parcel B1	13,455	0.31
Parcel B2	13,455	0.31
Parcel B3	13,455	0.31
Parcel B4	13,455	0.31
Parcel B5	13,455	0.31
Parcel A	34,220	0.79
	-	-
Comm'l / Retail	53,582	1.23
Roadway	50,259	1.15
Total		15.19

Landscape Maintenance Guidelines

APPENDIX 3

WILDHORSE

Landscape Maintenance Guidelines for Wildhorse Estates

Introduction

Utilization of the following guidelines will improve efficiency and reduce overall maintenance costs while creating a more aesthetically pleasing and environmentally sound landscape.

General Maintenance Guidelines

- All paper, trash, debris, and unsightly items shall be picked up and disposed of from all areas.
- Replace topsoil, mulch, etc. lost from washouts and reconstruct grade failures.
- All planting areas and lawns shall be weeded as necessary to maintain a clean and weed-free condition. Weeding shall be implemented by chemical or mechanical methods.
- Maintain mulch in a clean and neat condition with a minimum of three (3") inches coverage over all planter beds and tree wells. Restore as necessary with mulch, which is clean and free from foreign material and seed. Mulch shall match that of the initial installation.
- Fertilizer shall be applied according to manufacturer's specifications and/or maintain plant material in a vigorous, thriving condition.
- Any dead or severely damaged plant material shall be removed and replaced with the same material and size as the original installed.

Careful inspection of plants shall be undertaken on a monthly basis. Spraying of insecticide/ miticide or fungicide shall only be done in response to a particular problem. Spraying shall be done in accordance to manufacturer's specifications by a licensed applicator. Products leaving an undesirable odor or residue shall not be used. Spraying must get approval from WDRC.

Irrigation System Maintenance

- Irrigation shall be cycled to provide deep-water saturation and to minimize runoff and erosion. Watering cycles shall be adjusted to seasonal and micro-climate requirements and operate prior to sunrise.
- All lawn and turf areas are to receive 100% head-to-head coverage by use of rotors and/or pop-up sprays. All planter beds are to be watered using drip irrigation.
- Rigid risers for sprinkler purposes shall not be allowed.
- Irrigation systems, including pump stations and deionization units shall be maintained in proper working order at all times. Necessary repairs shall be made immediately.
- Sprinklers shall be adjusted as necessary to correct overspray on all paved areas and structures.
- A start up and shut down process shall be carried out each season. This process shall involve draining the system of any water (including the backflow preventer) at shut down and at start up closing/sealing system to allow pressurization.
- All irrigation controllers shall be checked monthly for functionality. Controller back-up batteries shall be checked monthly for proper charge and replaced when necessary.
- Any broken parts of sprinkler system shall be repaired quickly and with parts of equal or greater quality.

Landscape Maintenance Guidelines for Wildhorse Estates

Trees

Mulching
Use at least (3") inches thick of organic mulch material in at least a 2-foot radius around the trunk of a deciduous tree. Use at least three (3") inches thick of organic mulch material at least to the drip line of a conifer tree. Replenish as required.

Pruning
As a general rule all pruning shall be Natural Target Pruning as defined by the International Society of Arboriculture. Pruning within the first 3-5 years of a newly planted tree should be kept to a minimum, except to remove dead material, crossing branches or damaged branches. After 3-5 years a tree may be pruned to reduce foliage density, promote flowering, or correct storm damage.

Staking
Trees should be staked upon installation to help support tree during establishment. Remove all staking as soon as trees can support themselves. Timing varies by species and plant age; however, a general rule is 1-2 years after planting.

Shrubs

Fertilization
A broadleaf weed pre-emergent for shrub beds shall be applied in early to mid-April every year to assist in keeping weeds to a minimum. Reapply as needed during the rest of the year.

Fertilize in early spring before the plant leafs are out (February or March). Broadleaf evergreen and other acid loving plants shall be fertilized with an appropriate acid fertilizer. Make an additional application, in early summer, of a slow-release organic fertilizer, if plants appear chlorotic or show yellowing of new growth; apply chelated iron as per manufacturer's recommendations on package.

Mulching
Mulch all shrub beds with three (3") inches of organic mulch material. Replenish as required.

Pruning
As a general rule all pruning shall be Natural Target Pruning as defined by the International Society of Arboriculture. Pruning shall be done only to remove dead or diseased branches or to improve shape and structure. Avoid gouging and clipping hedges too closely as it is unsightly and harms the plant.

Landscape Maintenance Guidelines for Wildhorse Estates

Groundcovers

Fertilization
A broadleaf weed pre-emergent for shrub beds shall be applied in early to mid-April every year to assist in keeping weeds to a minimum. Reapply as needed during the rest of the year.

Mulching
Mulch all groundcover with three (3") inches of organic mulch material. Replenish as required.

Trimming
Groundcovers should only be trimmed when they overgrow their planter bed or to remove dead or damaged branches. As a general rule, do not mow groundcovers. Some species do respond to the rejuvenating effects of mowing.

Turf grass

Aeration
Aeration is not allowed per Town Code. ~~Turfgrass areas in regions of clay, caliche, and highly compacted soils require regular aeration. Aeration should be accomplished in the early spring or before soils freeze in late autumn in colder climates. Aeration should be done at least two times a year.~~

Fertilization
Fertilizing shall take place three times throughout the year. First, between March 15th and April 15th a pre-emergent for crabgrass combined with an ammonium sulfate fertilizer shall be applied as per manufacturer's specifications. Second, between June 15th and July 15th, a sulfur coated u~~a~~rea or other slow release equivalent shall be applied as per manufacturer's specifications. Third, between August 15th and September 15th a mixture of approximately 75% ammonium sulfate and 25% ammonium nitrate shall be applied as per manufacturer's specifications.

Apply a broadleaf weed spray once in May and then again in September to assist with weed suppression or as needed.

Mowing
Mowing is not allowed per Town Code. ~~Mowing shall occur on a regular basis to maintain the turf at a height between 2-1/2" - 3-1/2". Turfgrass mowing should be accomplished as required to maintain aesthetic appeal and vigor. As a general rule, never trim off more than 1/3 the height of a grass blade. The direction of mowing shall be alternated weekly.~~

~~If more than an inch of length is being trimmed, bagging shall be required. All material being bagged shall be removed from site and not thrown onto adjacent property. Otherwise, all mowing shall be carried out with mulching mowers.~~

Trimming and Edging
All edges between grass, shrub beds, paved surfaces and structures shall be maintained by using a sharp edging tool at least once a month.

Weed eating shall not come within 6" of any tree trunk. Excess grass from mowing and trimming that falls on pavements or roads shall be cleaned and removed from site.

Landscape Maintenance Guidelines for Wildhorse Estates

Perennials

Perennials are a diverse assortment of plants. Typically, perennials have one blooming season each year.
After blooming, the plant may continue to grow; it might hibernate and virtually disappear, or it may retain the same appearance throughout the year. Most perennials are grown for their flower color or interesting foliage.

Fertilization
A broadleaf weed pre-emergent for shrub beds shall be applied in early to mid-April every year to assist in keeping weeds to a minimum. Reapply as needed during the rest of the year.

Fertilize in early spring before the plant leafs out (February or March). Broadleaf evergreen and other acid loving plants shall be fertilized with an appropriate acid fertilizer. Make an additional application, in early summer, of a slow-release organic fertilizer, if plants appear chlorotic or show yellowing of new growth; apply chelated iron as per manufacturer's recommendations on package.

Mulching
Mulch all perennials with three (3") inches of organic mulch material. Replenish as required.

Walkways

All paved walkways, and other paved areas shall be kept in clean and neat conditions, free of all trash and debris. Sweeping of these areas shall be necessary to avoid sediment build up and debris collection along curbs and wheel stops. Asphalt and concrete walks and paths may require repair of cracks, rejuvenation by spray sealing, or even replacement as they age. Consult with a civil engineer to determine the most efficient and appropriate method of maintenance.

Fire Suppression

All weeds in vacant lots shall be maintained so that height shall not exceed twelve (12") inches. All cut material over twelve (12") inches shall be removed from site as to not pose a fire hazard.

Construction Regulations

APPENDIX 4

WILDHORSE

Construction Regulations

TO BE UPDATED

Pre-Construction Conference

Prior to commencing construction, the Builder must meet with an authorized representative of the WDRC to review the approved Final Plans, the Construction Area Plan, the Construction Regulations, and to coordinate scheduling and Construction Activities with the WHDRC. At this meeting, the Builder and Owner must bring a copy of the Building Permit issued and any related use permit from the appropriate local jurisdictional authority.

Construction Area

Prior to the commencement of any Construction Activity the Builder will provide the WDRC, for its approval, with a detailed plan of the proposed Construction Area showing the area in which all Construction Activities will be confined and how the remaining portions of the Lot will be protected. This Construction Area Plan will designate the location and size of the construction material storage and parking areas, and the locations of the chemical toilet, temporary trailer/structure, dumpster, debris storage, firefighting equipment, utility trenching, and limits of excavation and erosion control.

The Builder shall be responsible for repair of any damage to Common Area or Developer installed irrigation or landscape to the satisfaction of the WDRC. There shall be no staging of construction equipment or materials on adjacent Lots to the Owner's Lot. All staging within Wildhorse Estates must occur on the Owner's Lot.

Fencing Requirements:
The Plan shall identify the area to be fenced with chain link or tan shade screen fencing or similar methods acceptable to the WDRC for the protection of existing landscaped areas, to screen Construction Activities and to control dust. Such fence or screening material shall be maintained in good condition during the course of construction of the Residence and related Improvements. One entrance into the fenced enclosure shall be located at the driveway entry.

Care must be taken to avoid or, if unavoidable, to minimize the visual impact of the Construction Area on neighboring Lots, Common Areas and roads.

Prior to construction, all side yard planting and streetscape elements will be photo-graphed by WDRC to record existing site features.

Access to Construction Area
Wildhorse Estates requires all Builders to comply with the following

1. Identify all vehicles entering Wildhorse Estates with the Builder's name and job site

2. Enforce hours of access, speed limit and route of travel on the Wildhorse Estates road system as specified by the WDRC

3. Limit access to the Construction Area only on designated routes as specified by the WDRC

4. Consolidate all deliveries of materials and equipment to the extent feasible

Construction Regulations

Builder's Deposit

After the WDRC approves an Owner's proposed Construction Area Plan as described in Section 8.2, and prior to commencing any Construction Activity, a Builder's Deposit shall be delivered to the WDRC, on behalf of the Association, as security for the project's full and faithful performance of its Construction Activity in accordance with its approved final plans. This Builder's Deposit shall be a cash bond. In addition, the Builder's Deposit may be drawn upon to pay for repairs to adjacent Lots and/or Common Areas damaged during Construction.

The amount of the Builder's Deposit shall be $10,000 per Lot or such greater amount as determined by the WDRC for all Lots within Wildhorse Estates. This amount may be adjusted annually by the WDRC.

As noted above, the WDRC may use, apply or retain any part of a Builder's Deposit to the extent required to reimburse the WDRC for any cost that the **WHDRC** may incur on behalf of the project's Construction Activity. Any monies shall be reimbursed to the WDRC for any fees incurred by the WDRC to restore the Builder's Deposit to its original amount. Construction Activity shall be halted until the Builder's Deposit is brought up to the original amount. The WDRC shall return the Builder's Deposit to the Owner within 45 working days after the issuance of a Notice of Completion from the WDRC.

Vehicles and Parking Areas

Only vehicles, equipment and machinery that are essential to any Construction Activity may park within the Construction A WDRC rea or such other specific area designated by the WDRC so as to minimize potential damage to existing vegetation, utilities, landscape or other Improvements.

Storage of Materials and Equipment

All construction materials, equipment and vehicles will be stored within the fenced boundary of the WDRC-approved Construction Area. Equipment and machinery will be stored on-site only while needed.

Construction Activity Times

The times of construction will be limited to

Monday – Friday 7:00 a.m. – 6:00 p.m.

Saturday 8:00 a.m. – 5:00 p.m.

Essentially quiet activities that do not involve heavy equipment or machinery may occur at other times subject to the review and approval of the WDRC. No personnel are to remain at the Construction Site after working hours.

Construction Trailers and/or Temporary Structures

Any Owner or Builder who desires to bring a construction trailer or the like to Wildhorse Estates must obtain written approval from the WDRC. The WDRC will work closely with the Owner and/or Builder to site the trailer in the best possible location to minimize impacts to the site and to adjacent Parcel Owners. All such facilities will be removed from the Lot prior to issuance of a Certificate of Occupancy. It is encouraged that construction trailers be painted colors that will not stand out in the landscape. For example: Shades of brown, green, grey and beige. Colors not permitted are: Shades of white, yellow, black, orange, purple, blue and other bright colors.

Temporary living quarters for the Owner, Builder or their employees on the Lot will not be per-mitted.

Construction Regulations

Sanitary Facilities

Sanitary facilities must be provided for construction personnel on-site in a location approved by the WDRC. The facility must be located in an area on-site that does not impact adjacent Residences and roads, maintained regularly, and be the color "Tan".

Debris and Trash Removal

Contractors must clean up all trash and debris on the Construction Site at the end of each day. Trash and debris must be removed from each Construction Site at least once a week and trans-ported to an authorized disposal site. Lightweight material, packaging and other items must be covered or weighted down to prevent wind from blowing such materials off the Construction Site. Contractors are prohibited from dumping, burying or burning trash anywhere on the Lot or in the Wildhorse Estates community. During the construction period, each Construction Site must be kept neat and tidy to prevent it from becoming a public eyesore or affecting adjacent Lots. Dirt, mud or debris resulting from activity on each Construction Site must be promptly removed from roads, open spaces and driveways or other portions of Wildhorse Estates. All excess earth generated by trenching and approved grading activities must be removed from the site. Any cleanup costs incurred by the WDRC or the Association in enforcing these requirements will be taken out of the Builder's Deposit or billed to the Owner as needed. Waste removal shall be in compliance with the approved Wildhorse Estates's Environmental Impact Report.

Hazardous Waste Management

In order to be able to respond and monitor hazardous material use and/or spills, the Contractor shall comply with the following criteria listed below:

- The Contractor shall provide a contact person and telephone number for a company experienced in emergency response for vacuuming and containing spills for oil or other petroleum products.
- Absorbent sheets will be used for spill prevention and clean up. Several boxes shall be located at fuel trucks, storage areas and in maintenance vehicles. Inventories must be maintained as necessary.
- A reportable spill is defined as a spill of one or more gallons and a significant spill is defined as more than ten gallons.
- The Contractor shall maintain a list of product names and a Materials Safety Data Sheet (MSDS) for all hazardous material products used or located on site.
- Before a hazardous material is stored, the Contractor shall check to ensure that:
    - The material is stored in an approved container
    - The container is tightly closed
    - The container has the proper warning label
    - The container is inspected for leaks
- Any Contractor determined to be introducing hazardous materials into the sanitary sewer or storm drain system will be removed from the site.

Construction Regulations

Excavation and Grading

During construction, erosion must be minimized on exposed Cut and/or Fill slopes through proper soil stabilization, water control and re-vegetation. Grading operations may be suspended by WDRC during periods of heavy rains or high winds. Blowing dust resulting from grading and construction operations must be controlled by watering.

All topsoil disturbed by grading operations must be stockpiled and covered to minimize blowing dust within the Construction Area and reused as part of the site restoration/landscaping plans. All excess materials must be removed from the site.

Foundations

The Owner is encouraged to seek the assistance of a licensed Soil Engineer to examine and test soil conditions on her/his Lot prior to undertaking any design or construction. Declarant makes no representations or warranties, expressed or implied, as to the soil conditions. WDRC has the right to verify Pad certification and compaction information with the Owner as well as the Owner shall provide verification prior to construction.

- The Owner and the Owner's Architect, Engineer and Contractor shall give due consideration to the design of the foundation systems of all structures.
- It is the Owner's responsibility to conduct an independent soils engineering investigation to determine the suitability and feasibility of any Lot for construction of the intended Improvement.

Lot Survey

Prior to commencement of design, it is the responsibility of the buyer to obtain a survey by a Surveyor licensed to perform work in Utah to confirm existing grades, tops and toes of slopes and any other features or Lot attributes that would affect the design of any Lot Improvement.

Start of Construction and Temporary Landscape

All Improvements on a Lot shall be completed within 18 months after commencement according to approved Final Design Review plans unless an exception is granted in writing by the WDRC. Construction of the main residence shall take place before commencement of construction of secondary structures. If an Improvement is commenced and construction is then abandoned for more than 90 days, or if construction is not completed within the required 18-month period, the Association may impose a fine of not less than $300.00 per day (or such other reasonable amount as the Association may set) to be charged against the Owner of the Lot until construction is resumed or the Improvement is completed, as applicable, unless the Owner can prove to the satisfaction of the Board that such abandonment is for circumstances beyond the Owner's control.

For aesthetic and dust control reasons, the WDRC may request Lot Owners who, in the WDRC's opinion, are not diligently pursuing construction to stabilize and maintain the surface of their Lot at the Owner's sole expense.

Construction Regulations

Damage Repair and Restoration

Damage and scarring to other property, including open space, adjacent parcels, roads, driveways, irrigation and/or other Improvements will not be permitted. If any such damage occurs, it must be repaired and/or restored promptly at the expense of the person causing the damage or the Owner of the Parcel to the following extents:

- To the Owner's satisfaction, re-vegetate the area disturbed immediately and maintain said vegetation until established
- Pay any fines imposed by the Association or other governmental agencies as a result of said violation

Project Completion and Close-Out

Upon completion of construction, each Owner and Builder will be responsible for cleaning up the construction site and for the repair of all property that was damaged, including, but not limited to, restoring grades, planting shrubs and trees as approved or required by the WDRC, and repair of streets, driveways, pathways, drains, culverts, ditches, signs, lighting and fencing. Any property repair costs as mentioned above, incurred by the WDRC or the Association, will be taken out of the Builder's Deposit or billed to the Owner.

Construction Observations

In addition to any building inspections required by local jurisdiction, the following construction observations must be scheduled with the WDRC:

1. Site Observation: This observation includes review of staking of the Construction Area including all corners of proposed buildings, driveways and extent of grading. In addition, flagging of all areas to be protected will be reviewed. An on-site mock-up for color and materials shall be constructed for approval by the WDRC. A full-scale mock-up (minimum 1.5-meters by 2.5-meters, approx. 4-feet by 8-feet) shall be constructed which accurately conveys all proposed exterior materials, colors, and detailing, including window, corner and trim details and/or details of areas where one material changes to another. This observation must be approved by the WDRC prior to the open wall observation.

2. Open Wall Observation: This observation must be done prior to enclosure of exterior walls and roof. Final approval is contingent upon field mock-ups of all colors and materials at the appropriate time in the construction process and in sizes/context that will allow a clear under-standing of the final product.

3. Final Observation: This observation must be done prior to the Certificate of Occupancy issued by the local jurisdiction and should be scheduled when all Improvements, including all structures, landscaping and grading, have been completed.

Construction Regulations

Construction Signs

Temporary construction signage will be limited to one sign per home site. The sign shall not exceed .6-square meters (approx. 6-square feet) of total area and shall be located on the Construction Site and within 3-meters (approx. 10-feet) of the Construction Site entrance. The background color of all signage shall be either dark beige or tan.

All construction signs must be reviewed and approved by the WDRC prior to installation. Layout for the sign must be submitted to the WDRC ten working days prior to a regularly scheduled meeting. Alternatively, the WDRC may require the contractor to construct a standardized construction sign. The Contractor shall contact the WDRC prior to sign fabrication to confirm the required sign type.

No Pets

Construction personnel are prohibited from bringing pets, particularly dogs, into Wildhorse Estates.

Security

Security precautions at the Construction Site may include temporary fencing approved by the WDRC. Security lights, audible alarms and guard animals will not be permitted.

Noise

Builder will make every effort to keep noise to a minimum. Radios will not be allowed in order to minimize disturbance to neighbors and wildlife.

No Smoking

Smoking is only allowed in enclosed vehicles. Fines of up to $1,000 will be taken out of the Builder's Deposit or billed to the Owner in the event that smoking occurs out of vehicles on a Construction Site. Warning signs such as "No Smoking or Open Flame Allowed" must be posted at the Construction Site.

No Firearms

No firearms are allowed in Wildhorse Estates.

Alcohol/Drugs

No alcohol or illegal drugs are allowed on the Wildhorse Estates property at any time.

Construction Personnel Conduct

Offensive, loud or unmannerly behavior exhibited by the Builder, its employees or subcontractors is not allowed and will not be tolerated. Builder shall be responsible for the behavior of its employees and subcontractors.

Fire Protection

At least one full and operable 10 pound ABC rated dry chemical fire extinguisher shall be present and available in a conspicuous place on the Construction Site at all times. Absence of such a device may result in fines against the Builder or access of the Builder being denied to the Construction Site.

Termite Pre-treat

A termite pretreatment is required during construction and must be accomplished during Wildhorse Estates designated working hours with authorized access. No workmen or subcontractors are allowed to enter the property during "off" hours. Builders shall make certain to schedule work accordingly and give subcontractors enough prior notice to schedule their crews within Bahía's construction work hours.

Covenants, Codes, and Restrictions

APPENDIX 5

WILDHORSE

Covenants, Codes, and Restrictions for Wildhorse Estates

SUMMARY OF DESIGN GUIDELINES AND

RECORDED DECLARATION OF

COVENANTS, CONDITIONS AND RESTRICTIONS

WILDHORSE ESTATES

THIS IS A SUMMARY OF THE DESIGN GUIDELINES AND RECORDED DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS ("CC&R'S") FOR THE WILDHORSE ESTATES MASTER PLANNED COMMUNITY. THIS SUMMARY IS INTENDED ONLY TO GIVE BRIEF SYNOPSIS TYPE INFORMATION AND DOES NOT COVER THE ENTIRETY OF THESE DOCUMENTS. PLEASE REFER TO THE DESIGN GUIDELINES AND CC&R'S FOR COMPLETE INFORMATION. ALL BUYERS, OWNERS AND BUILDERS WILL BE BOUND BY ALL THE INFORMATION IN THESE DESIGN GUIDELINES AND CC&RS, NOT THE INFORMATION IN THIS SUMMARY. IF ANY INFORMATION IN THIS SUMMARY CONFLICTS WITH INFORMATION IN THE DESIGN GUIDELINES AND/OR CC&RS, THE INFORMATION IN THE DESIGN GUIDELINES AND CC&RS SHALL CONTROL. THIS SUMMARY IS SUBJECT TO CHANGE AT ANY TIME.

ARCHITECTURAL REVIEW REOUIREMENTS

The Wildhorse Estates Design Review Committee ("WDRC ") must approve and sign all plans prior to submittal to Wasatch County for a building permit. Each individual builder is responsible for all applicable permits and approvals from Wasatch County, and any other currently applicable agencies. The WDRC is not responsible for reviewing, nor may its approval of any plan or design be deemed approval of, any plan or design from the standpoint of structural safety or conformance with law. No exterior construction, installation or alteration of an improvement in the properties by an Owner or a Neighborhood Association may be commenced until the plans and specifications showing the nature, kind, shape, height, width, color, materials and location thereof have been submitted to and approved in writing by the WDRC.

HOMEOWNER'S ASSOCIATION

The Wildhorse Estates Master Association ("WEMA") is a mandatory association consisting of all lot and home owners. All owners are hereby bound to honor and abide by all of its rules and regulations. Each lot owner must pay an initial WEMA set-up fee at the time of the lot purchase closing. After each lot closing, regular monthly assessments will be billed to lot owners.

TIME FOR COMPLETION

Landscaping must be completed within one year of occupancy and in accordance to proper planning seasons.

SQUARE FOOTAGE MINIMUMS

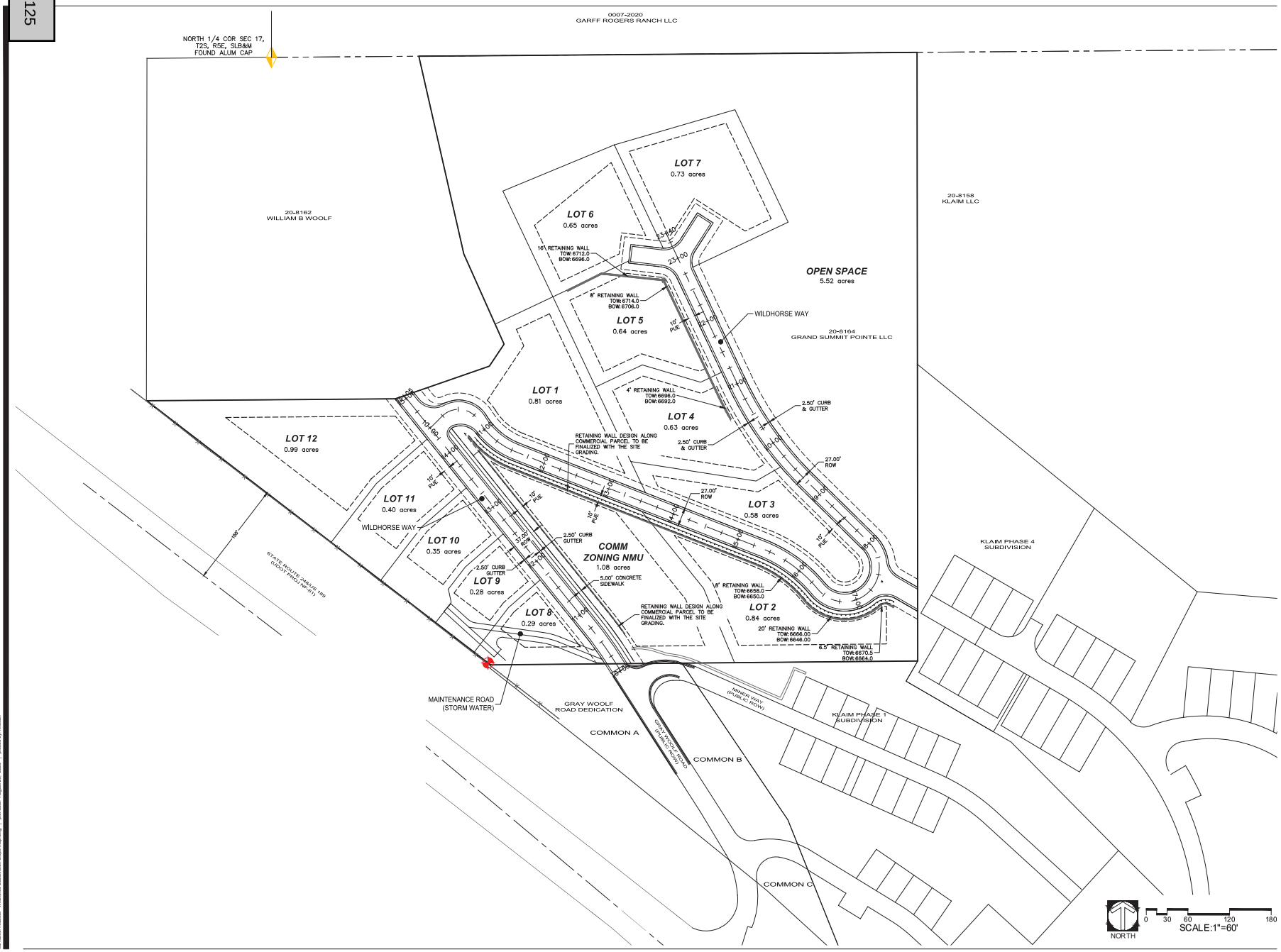
Minimum sq ft on any lot should be 5,000 in Wildhorse Estates.
Minimum Square Feet = Minimum Living Square Footage (Main & Upper Level, does not include levels below ground or garage)

EXHIBIT "K"

REZONE PLAN FOR SITE

Updated plan to be provided

DRAFT



HIDEOUT - WILDHORSE

MULHOLLAND DEVELOPMENT SOLUTIONS
kristian@mulholland-development.com
P.O. BOX 680925
PARK CITY, UTAH 84068
435.601.2540 (c)

CONCEPTUAL

DATE:	August 26, 2025
DESIGN BY:	KJM
DRAWN BY:	BRC
REVIEW BY:	
PROJECT NO:	HIDEOUT
ISSUE:	CONCEPTUAL
REVISIONS:	

SHEET TITLE:
WILDHORSE CONCEPT PLAN

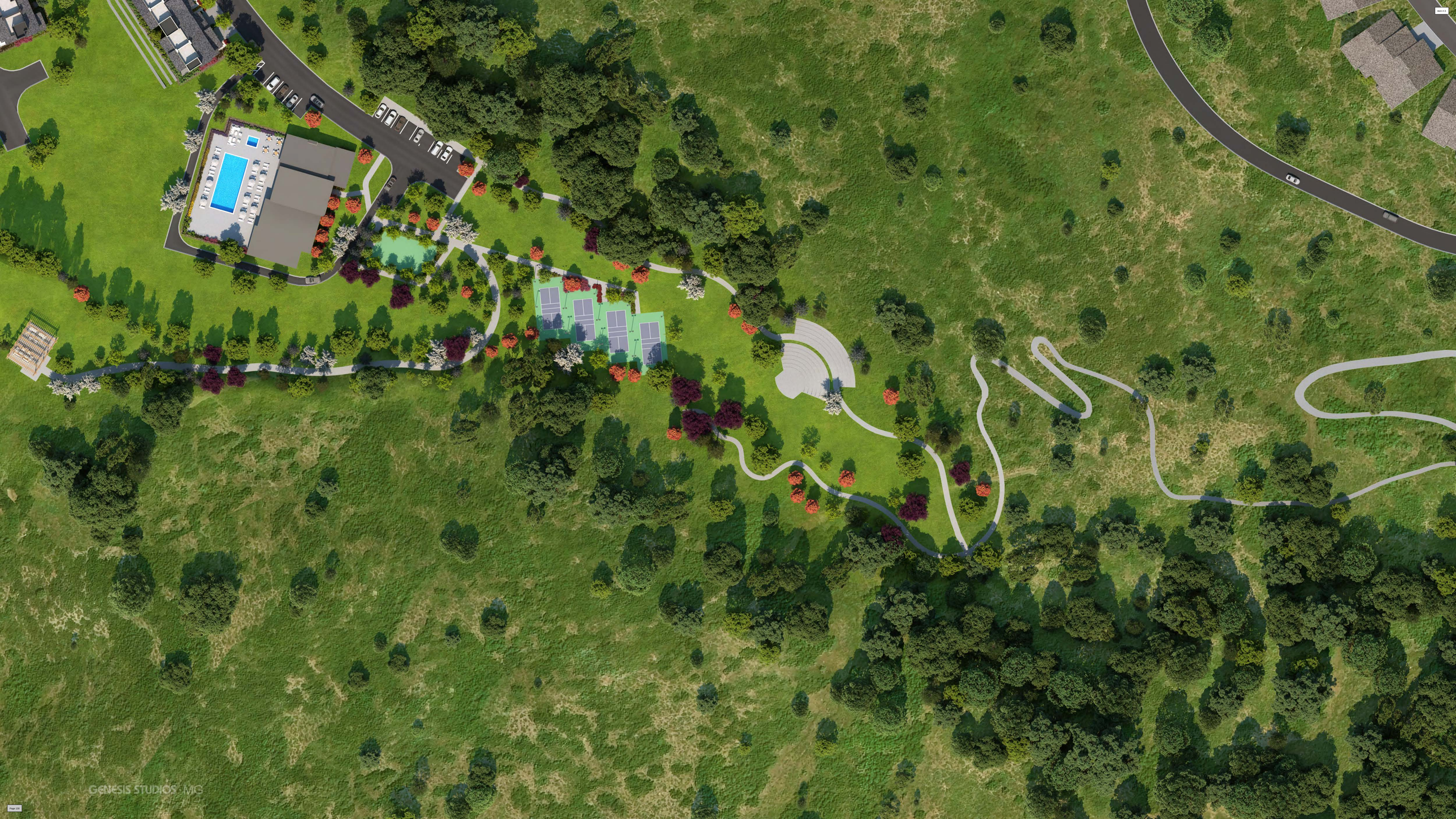
SHEET NUMBER:
EXH

File Attachments for Item:

3. Discussion and possible action on the Final Subdivision Plat for Shoreline Phase 4, located within the Town of Hideout, Utah.

Shoreline Phase IV

Packet 1


GENESIS STUDIOS · MG

GENESIS STUDIOS MG

GENESIS STUDIOS MG

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Sandy, UT 84070
p 801.679.3157

SHORELINE TOWNHOMES PHASE 4 | OVERALL LANDSCAPE PLAN

9.02.2025

Scale: 1" = 120'-0"

0 60 120 240 360

SYMBOL	BOTANICAL / COMMON NAME	CONT	CAL	QTY
TREES				
	ABIES LASIOCARPA / SUBALPINE FIR	B&B	6' HT MIN.	64
	ACER GRANDIDENTATUM / BIGTOOTH MAPLE	B&B	2" CAL	35
	POPULUS FREMONTII / FREMONT COTTONWOOD	B&B	2" CAL	28
	POPULUS TREMULOIDES / QUAKING ASPEN	B&B	6' HT MIN.	30
	QUERCUS GAMBELII / GAMBEL OAK	B&B	2" CAL	42

SYMBOL	BOTANICAL / COMMON NAME	CONT	QTY
GROUND COVERS			
	NATIVE SEED AREA	BED	268,628 SF
	PLANTING BED / CONTRACTOR INSTALLED	BED	119,945 SF

SHORELINE TOWNHOMES PHASE 4 | OVERALL LANDSCAPE PLAN

7.10.2025

Scale: 1" = 60'-0"

0 30 60 120 180

PLANT SCHEDULE VILLAGE CENTER

SYMBOL	BOTANICAL / COMMON NAME
TREES	
	ACER GRANDIDENTATUM / BIGTOOTH MAPLE
	AMELANCHIER X GRANDIFLORA `AUTUMN BRILLIANCE` / SERVICEBERRY
	POPULUS FREMONTII / FREMONT COTTONWOOD
	POPULUS TREMULOIDES / QUAKING ASPEN
	PRUNUS VIRGINIANA 'CANADA RED' / CANADA RED CHOKECHERRY
	QUERCUS GAMBELII / GAMBEL OAK
EVERGREEN TREES	
	ABIES LASIOCARPA / SUBALPINE FIR
	PICEA PUNGENS `GLAUCA` / BLUE COLORADO SPRUCE

SYMBOL	BOTANICAL / COMMON NAME
GROUND COVERS	
	ARTIFICIAL TURF - SEE SITE PLAN
	NATIVE SEED AREA
	PLANTING BED / CONTRACTOR INSTALLED
	PLAYGROUND SURFACING / CONTRACTOR INSTALLED
	POA PRATENSIS / KENTUCKY BLUEGRASS
	SPECIALTY CONCRETE / BY OWNER

Scale: 1" = 40'-0"

0 20 40 80 120

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CLIENT

SHORELINE VILLAGE CENTER

ADDRESS
CITY

REVISIONS

NO.	DATE	DESCRIPTION

Stamp

Designed By:	GD
Drawn By:	GD
Date:	6/20/2024
Checked By:	RD
Project No:	24-102

Drawing Title

OVERALL LANDSCAPE PLAN

Drawing number

LP100

PLANT SCHEDULE VILLAGE CENTER

SYMBOL	BOTANICAL / COMMON NAME
TREES	
	ACER GRANDIDENTATUM / BIGTOOTH MAPLE
	AMELANCHIER X GRANDIFLORA `AUTUMN BRILLIANCE` / SERVICEBERRY
	POPULUS FREMONTII / FREMONT COTTONWOOD
	POPULUS TREMULOIDES / QUAKING ASPEN
	PRUNUS VIRGINIANA 'CANADA RED' / CANADA RED CHOKECHERRY
	QUERCUS GAMBELII / GAMBEL OAK
EVERGREEN TREES	
	ABIES LASIOCARPA / SUBALPINE FIR
	PICEA PUNGENS `GLAUCA` / BLUE COLORADO SPRUCE

SYMBOL	BOTANICAL / COMMON NAME
SHRUBS	
	AMELANCHIER ALNIFOLIA `REGENT` / REGENT SERVICEBERRY
	CORNUS SERICEA 'KELSEYI' / KELSEY'S DWARF RED TWIG DOGWOOD
	ERICAMERIA NAUSEOSA / RUBBER RABBITBRUSH
	MAHONIA AQUIFOLIUM 'COMPACTA' / COMPACT OREGON GRAPE
	POTENTILLA FRUTICOSA 'HACHLISS' / BELLA BELLISSIMA™ BUSH CINQUEFOIL
	RHUS GLABRA 'CISMONTANA' / WESTERN SMOOTH SUMAC
	RIBES AUREUM / GOLDEN CURRANT
ORNAMENTAL GRASSES	
	FESTUCA X `SISKIYOU BLUE` / SISKIYOU BLUE FESCUE
PERENNIALS	
	COREOPSIS GRANDIFLORA / TICKSEED
	HEUCHERA X 'GEORGIA PEACH' / GEORGIA PEACH CORAL BELLS
	HEUCHERA X 'GREEN SPICE' / GREEN SPICE CORAL BELLS
	LUPINUS X 'GALLERY YELLOW' / GALLERY YELLOW LUPINE
	PENSTEMON X 'DARK TOWERS' / DARK TOWERS BEARDTONGUE
	SALVIA NEMOROSA 'MAY KNIGHT' / MEADOW SAGE

SYMBOL	BOTANICAL / COMMON NAME
GROUND COVERS	
	ARTIFICIAL TURF - SEE SITE PLAN
	NATIVE SEED AREA
	PLANTING BED / CONTRACTOR INSTALLED
	PLAYGROUND SURFACING / CONTRACTOR INSTALLED
	POA PRATENSIS / KENTUCKY BLUEGRASS
	SPECIALTY CONCRETE / BY OWNER

Scale: 1" = 20'-0"

0 10 20 40 60

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SHORELINE VILLAGE CENTER

ADDRESS
CITY

REVISIONS

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Stamp

Designed By:	GD
Drawn By:	GD
Date:	6/20/2024
Checked By:	RD
Project No:	24-102

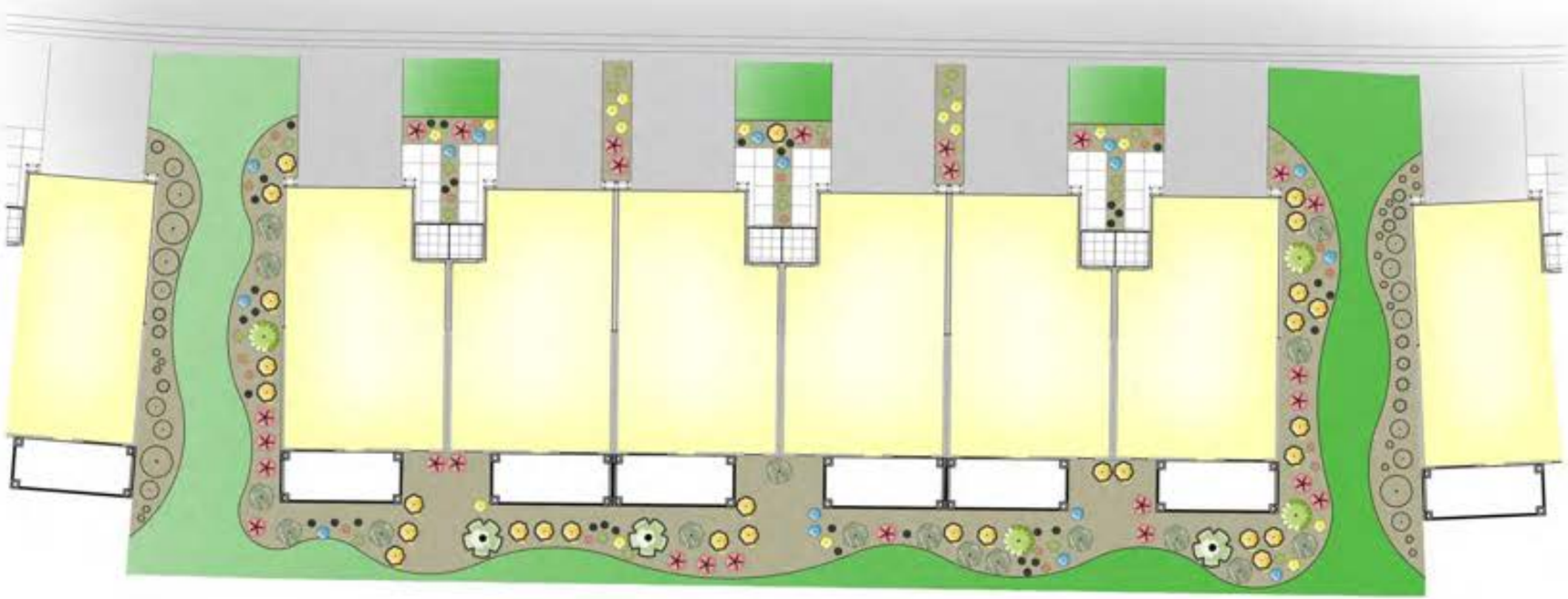
Drawing Title

LANDSCAPE PLAN ENLARGEMENT

Drawing number

LP401

PLANT SCHEDULE TYPICAL



SHORELINE TOWNHOMES PHASE 4 | TYPICAL LANDSCAPE PLAN

7.10.2025

PLANT SCHEDULE VILLAGE CENTER

SYMBOL	BOTANICAL / COMMON NAME
TREES	
	ACER GRANDIDENTATUM / BIGTOOTH MAPLE
	AMELANCHIER X GRANDIFLORA `AUTUMN BRILLIANCE` / SERVICEBERRY
	POPULUS FREMONTII / FREMONT COTTONWOOD
	POPULUS TREMULOIDES / QUAKING ASPEN
	PRUNUS VIRGINIANA 'CANADA RED' / CANADA RED CHOKECHERRY
	QUERCUS GAMBELII / GAMBEL OAK
EVERGREEN TREES	
	ABIES LASIOCARPA / SUBALPINE FIR
	PICEA PUNGENS `GLAUCA` / BLUE COLORADO SPRUCE

SYMBOL	BOTANICAL / COMMON NAME
SHRUBS	
	AMELANCHIER ALNIFOLIA `REGENT` / REGENT SERVICEBERRY
	CORNUS SERICEA 'KELSEYI' / KELSEY'S DWARF RED TWIG DOGWOOD
	ERICAMERIA NAUSEOSA / RUBBER RABBITBRUSH
	MAHONIA AQUIFOLIUM 'COMPACTA' / COMPACT OREGON GRAPE
	POTENTILLA FRUTICOSA 'HACHLISS' / BELLA BELLISSIMA™ BUSH CINQUEFOIL
	RHUS GLABRA 'CISMONTANA' / WESTERN SMOOTH SUMAC
	RIBES AUREUM / GOLDEN CURRANT
ORNAMENTAL GRASSES	
	FESTUCA X `SISKIYOU BLUE` / SISKIYOU BLUE FESCUE
PERENNIALS	
	COREOPSIS GRANDIFLORA / TICKSEED
	HEUCHERA X 'GEORGIA PEACH' / GEORGIA PEACH CORAL BELLS
	HEUCHERA X 'GREEN SPICE' / GREEN SPICE CORAL BELLS
	LUPINUS X 'GALLERY YELLOW' / GALLERY YELLOW LUPINE
	PENSTEMON X 'DARK TOWERS' / DARK TOWERS BEARDTONGUE
	SALVIA NEMOROSA 'MAY KNIGHT' / MEADOW SAGE

SYMBOL	BOTANICAL / COMMON NAME
GROUND COVERS	
	ARTIFICIAL TURF - SEE SITE PLAN
	NATIVE SEED AREA
	PLANTING BED / CONTRACTOR INSTALLED
	PLAYGROUND SURFACING / CONTRACTOR INSTALLED
	POA PRATENSIS / KENTUCKY BLUEGRASS
	SPECIALTY CONCRETE / BY OWNER

Scale: 1" = 20'-0"

0 10 20 40 60

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Sandy, UT 84070
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SHORELINE VILLAGE CENTER

ADDRESS
CITY

REVISIONS

NO	DATE	DESCRIPTION

Stamp

Designed By:	GD
Drawn By:	GD
Date:	6/20/2024
Checked By:	RD
Project No:	24-102

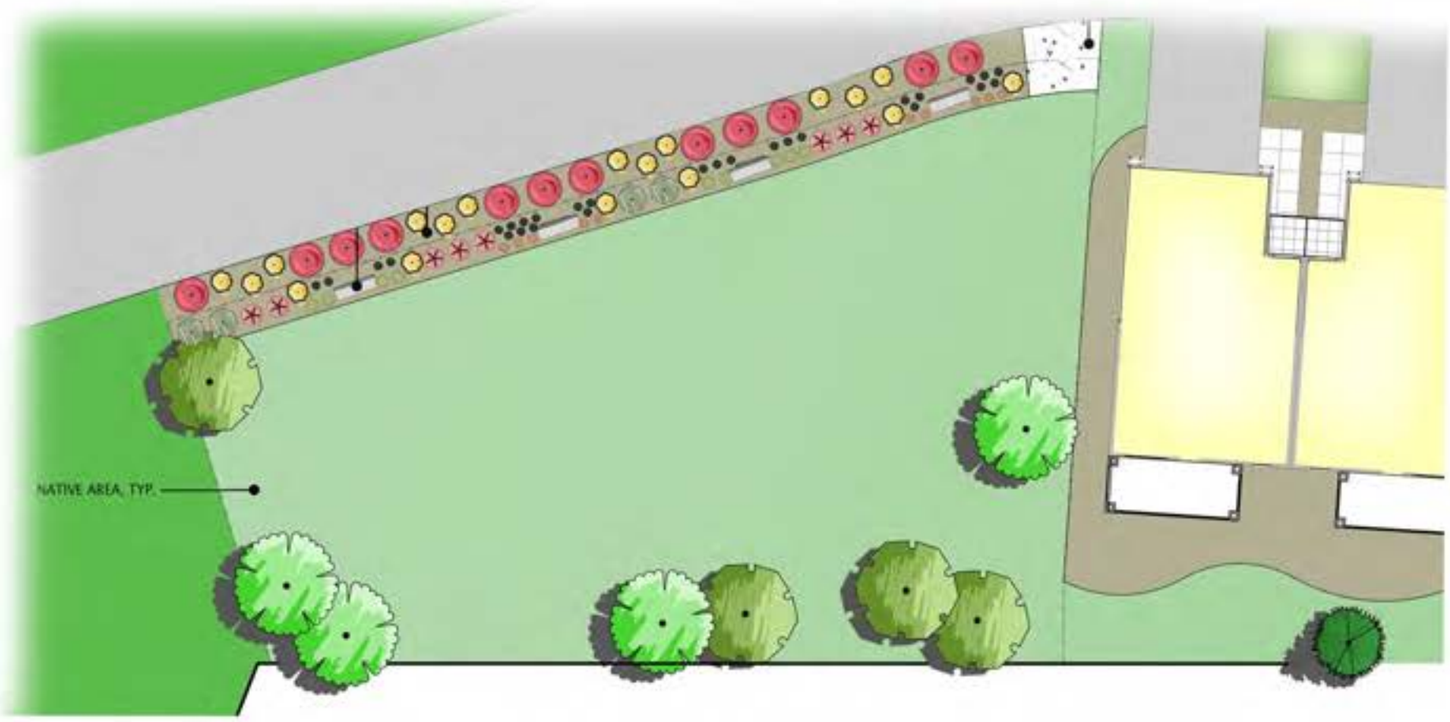
Drawing Title

LANDSCAPE PLAN ENLARGEMENT

Drawing number

LP401

PLANT SCHEDULE DOG PARK



SHORELINE TOWNHOMES PHASE 4 | DOG PARK LANDSCAPE PLAN 7.10.2025

PLANT SCHEDULE VILLAGE CENTER

SYMBOL	BOTANICAL / COMMON NAME	CONT	CAL
TREES			
	ACER GRANDIDENTATUM / BIGTOOTH MAPLE	B&B	2" CAL
	AMELANCHIER X GRANDIFLORA `AUTUMN BRILLIANCE` / SERVICEBERRY	B&B	2" CAL
	POPULUS FREMONTII / FREMONT COTTONWOOD	B&B	2" CAL
	POPULUS TREMULOIDES / QUAKING ASPEN	B&B	6` HT MIN.
	PRUNUS VIRGINIANA 'CANADA RED' / CANADA RED CHOKECHERRY	B&B	2" CAL
	QUERCUS GAMBELII / GAMBEL OAK	B&B	2" CAL
EVERGREEN TREES			
	ABIES LASIOCARPA / SUBALPINE FIR	B&B	6` HT MIN.
	PICEA PUNGENS `GLAUCA` / BLUE COLORADO SPRUCE	B&B	6` HT MIN.

SYMBOL	BOTANICAL / COMMON NAME
GROUND COVERS	
	ARTIFICIAL TURF - SEE SITE PLAN
	NATIVE SEED AREA
	PLANTING BED / CONTRACTOR INSTALLED
	PLAYGROUND SURFACING / CONTRACTOR INSTALLED
	POA PRATENSIS / KENTUCKY BLUEGRASS
	SPECIALTY CONCRETE / BY OWNER

Scale: 1" = 40'-0"

0 20 40 80 120

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Sandy, UT 84070
p 801.913.7994

CLIENT

SHORELINE VILLAGE CENTER

ADDRESS
CITY

REVISIONS

NO.	DESCRIPTION

Stamp

Designed By:	GD
Drawn By:	GD
Date:	6/20/2024
Checked By:	RD
Project No:	24-102

Drawing Title

OVERALL LANDSCAPE PLAN

Drawing number

LP100

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 1

A1.1

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 2

A1.2

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 3

A1.3

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 4

A1.4

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 5

A1.5

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 1

A1.1

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 2

A1.2

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 3

A1.3

Architecture + Planning
820 16th Street, Suite 500
Denver, CO 80202
303.825.6400
ktgy.com

SHORELINE VILLAGE CLUBHOUSE
UTAH # 2020141

CONCEPTUAL DESIGN
MAY 30, 2024

CLUBHOUSE RENDERING 4

A1.4

FRONT PERSPECTIVE

Architecture | Branding
Interiors | Planning
3660 Blake St., Suite 500
Denver, CO 80205
303.825.6400
ktgy.com

GCD

HIDEOUT, UTAH

SHORELINE
HIDEOUT, UTAH # 20230682

CONCEPTUAL DESIGN
08/08/2024

NTS

UH FRONT RENDERING STYLE A

A3-1

FRONT PERSPECTIVE

Architecture | Branding
Interiors | Planning
3660 Blake St., Suite 500
Denver, CO 80205
303.825.6400
ktgy.com

GCD

HIDEOUT, UTAH

SHORELINE
HIDEOUT, UTAH # 20230682

CONCEPTUAL DESIGN
08/08/2024

NTS

DH FRONT RENDERING STYLE A

A3-2

REAR PERSPECTIVE

Architecture | Branding
Interiors | Planning
3660 Blake St., Suite 500
Denver, CO 80205
303.825.6400
ktgy.com

GCD

HIDEOUT, UTAH

SHORELINE
HIDEOUT, UTAH # 20230682

CONCEPTUAL DESIGN
08/08/2024

NTS

DH REAR RENDERING STYLE A

A3-3

FRONT PERSPECTIVE

Architecture | Branding
Interiors | Planning
3660 Blake St., Suite 500
Denver, CO 80205
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ktgy.com

GCD

HIDEOUT, UTAH

SHORELINE
HIDEOUT, UTAH # 20230682

CONCEPTUAL DESIGN
08/08/2024

NTS

UH FRONT RENDERING STYLE B

A3-4

Shoreline Phase IV Unit Summary

Scenario	Unit Count	Total Acres	Units/Acre
Minimum	140	25.74	5.4
Moderate	186	25.74	7.2
Maximum	232	25.74	9.0

SHORELINE

Shoreline Phase IV

Packet 2

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Dear Polly and Thomas:

General Construction & Development, Inc. ("GCD") has submitted the application materials for final plat approval for Phase 4 of the Shoreline Subdivision in the Town of Hideout. These materials have been provided in preparation for presentation at the next available Town Council meeting. Although not required by the RSPA, MDA or its Vested Laws, the site plan layout has been adjusted in good faith in response to prior feedback, and the plans and reports do conform to the Town's Vested Laws, including the requirements set forth in Title 11 of the 2010 Hideout Town Code. Please note the site plan has a reduction of seven homes; additional curves added to the streets and curbs and varied building setbacks that pivot differently from building to building providing more visual relief in the streetscapes.

The submission includes all required elements of Title 11.06, including final engineering drawings, geotechnical analyses, drainage and utility plans, and ERU tabulations, all prepared in accordance with Appendices 1-6 of Title 11. Additionally, although the Town's Vested Laws require only a traffic study or report, which GCD produced with prior submittals, we recently completed a Category III traffic study, which benefits the Town and its future traffic needs, rather than merely Shoreline.

Shoreline and Phase IV is part of the Hideout Canyon Master Planned Community (the "MPC"). The MPC is subject to the Master Development Agreement for the Hideout Canyon Master Planned Community, dated March 11, 2010, and recorded on July 9, 2010, as Entry No. 360737 in the office of the Wasatch County Recorder (as amended, the "MDA"). Under the MDA, GCD has the vested right to develop Shoreline as part of the MPC pursuant to the "Town's Vested Laws" in effect as of the date of the MDA.

GCD received "Preliminary Plan" approval for all of Shoreline and its 700 homes in December 2016. The Preliminary Plan showed various product types and development pods within Shoreline, including single-family detached, single-family attached, stacked flats, commercial, recreation areas and a village center; all of which are a legal requirement of the RSPA zone. The approved Preliminary Plan indicated RSF, RMD, and Village Center designations (specified designations under the RSPA Zoning District) for the area included within Phase 4.

As identified on the vested and approved Preliminary Plan, the area now being indicated for development pursuant to GCD's Phase 4 application is identified as "MULTI-FAMILY" and "VILLAGE CENTER." GCD's Phase 4 application is consistent with the approved Preliminary Plan. In addition, the adjustments contemplated by GCD's Phase 4 application are consistent with the RSPA and the flexibility contemplated thereby, including the ability to move density as addressed in the letter to you dated August 27, 2024, regarding the flexibility contemplated under the RSPA and MDA. As outlined in that letter, Section 11.07.141 of the Town Code provides that Density Pods "are subject to change in size and location as the RSPA master plan actually develops from the concept stage to actual buildable site." GCD's Phase 4 application, evaluated in the context of both the larger MPC and more specifically, the approved and vested Preliminary Plan for Shoreline, is consistent with the RSPA and the "Town's Vested Laws" applicable pursuant to the requirements of the MDA.

Because the contents of this application require the certification/stamp of experts licensed by the State of Utah in a particular profession, (and such experts have stamped our application) under Section 7.9,

the application is "deemed to meet the specific standards which are the subject of the opinion or certification without further objection or required review by the Town or any other agency of the Town." We acknowledge the Town's normal process of redlining, commenting, or suggesting alternatives, and we respectfully request that the Town consolidate any such redlines with its review, consistent with Section 7.9.

GCD's Utah-licensed engineers, including respected and experienced civil engineers and surveyors, have meticulously reviewed the entire application, including all prior comments from the previous Town engineer, and have made revisions in good faith in response to the said engineer's comments that are consistent with the Vested Laws. The enclosed plans and reports incorporate those updates, are stamped and certified as required under MDA Section 7.9 and remain in full conformance with the MDA and the Town's Vested Laws (including the appendices), ensuring compliance with the applicable engineering standards in effect under the Vested Laws.

The Town's imposition of requirements on GCD's Phase 4 application that are not stated in the "Town's Vested Laws" violates MDA Section 4.2, as only those vested requirements are applicable to the MPC generally and Phase 4 specifically. Subsequently passed provisions of the current Town Code that do not fit within the narrowly defined exceptions set forth in the MDA are inapplicable. Accordingly, the Town's review should be constrained to the administrative approval contemplated by the MDA, conducted solely in the context of the "Town's Vested Laws" and not newly enacted provisions of the current Town Code.

The approval of Phase 4 is an administrative land-use decision governed by Utah Code Title 10, Chapter 9a (Municipal Land Use, Development, and Management Act). The Town is required to substantively review complete applications with reasonable diligence and to act within the procedural limits established by State law. We reserve all rights available under that Act regarding completeness, substantive review, and final action.

Respectfully,

Mike Stewart

PARR BROWN GEE & LOVELESS
ATTORNEYS AT LAW

Robert A. McConnell
Attorney at Law
rmcconnell@parrbrown.com

August 27, 2024

Via Electronic Delivery

Town of Hideout
Town Attorney
Polly McLean
Peak Law
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polly@peaklaw.net

Town of Hideout
Town Planner
Thomas Eddington Jr.
Integrated Planning & Designs
P.O. Box 681127
Park City, Utah 84068
thomas@inplandesign.com

Re: Shoreline Phase 4 Subdivision

Dear Polly and Thomas:

Our firm represents General Construction & Development, Inc. ("GCD"), which recently applied for final plat approval for Phase 4 of the Shoreline Subdivision in the Town of Hideout. Michael Stewart, the President of GCD, informed us that a question arose during the August 15, 2024 Planning Commission Meeting wherein GCD's Shoreline, Phase 4 application was considered. Specifically, a resident inquired as to GCD's ability to move development pods within Shoreline. Mr. Stewart asked us to provide our perspective on this inquiry.

As an initial matter, we note that Shoreline generally, and Phase 4 specifically, are part of the Hideout Canyon Master Planned Community (the "MPC"). The MPC is the subject of that certain

Master Development Agreement for the Hideout Canyon Master Planned Community, dated March 11, 2010 and recorded on July 9, 2010 as Entry No. 360737 in the office of the Wasatch County Recorder (as amended prior to the date hereof, the "MDA"). Pursuant to the MDA, GCD, and its affiliated entities, has the vested right to develop Shoreline as part of the MPC pursuant to the "Town's Vested Laws" in effect as of the date of the MDA.[1]

Pursuant to Section 3.4 of the MDA, the "Intended Uses and Densities for each Parcel" were "generally shown on the RSPA Zoning Map" attached to the MDA as Exhibit "B". The Town's current Town of Hideout Zoning Map, adopted pursuant to Ordinance #2022-O-01, continues to apply the RSPA zoning designation to GCD's property.

GCD received "Preliminary Plan" approval for Shoreline, including Phase 4, in December of 2016. The Preliminary Plan showed various product types within Shoreline, including single-family detached, single-family attached, stacked flats, recreation areas and a village center. The approved Preliminary Plan suggests RSF, RMD, and Village Center designations (specified designation under the RSPA Zoning District)" for the area included within Phase 4.

While the Staff Review for Phase 4 indicates that the Planning Commission is required to ensure the Phase 4 plat is "in line with the Preliminary Subdivisions Plat approved December 8, 2016," we submit that statement is inaccurate for several reasons. First, the Town's Subdivision Ordinance does not technically refer to or require a preliminary subdivision plat; Shoreline has an approved Preliminary Plan, but not an approved preliminary plat. Second, the Subdivision Regulations included in the Town Code do not require conformity between a final plat application and a previously approved Preliminary Plan, which on the face of the applicable application, sought to establish density pods for Shoreline. Finally, pursuant to Section 7.4.3 of the MDA, the Planning Commission's discretion with respect to review of "Development Applications" is limited to a determination that the applicable Development Application "complies with the MDA."

We also note that Section 11.07.141 of the Town Code specifically indicates that, while "Density Pods" are identified, "Hideout, and the participating landowners understand that these Density Pods ***are subject to change in size and location as the RSPA master plan actually develops from the concept stage to actual buildable site***" (emphasis added). The RSPA, moreover, specifically encourages "a wide range of well segmented, upscale real estate products."

Consistent with the foregoing flexibility and diversity of product type, GCD has altered the location of several product types as shown on the 2016 approved Preliminary Plan in response to public comments in connection with the June 2021 application and approval of the final plats for Phases 2 and 3. In connection with those submissions, the Town's planning staff asked GCD to

[1] References to the Town Code in this letter, unless otherwise noted, are to the version of the Town Code we understand to be applicable to Shoreline pursuant to the terms of the MDA.

include, as part of its application materials, a revised concept plan showing the new conceptual location of the various phases and/or density pods (effectively locating detached single-family product adjacent to the existing Silver Sky Subdivision (detached single-family homes) and moving attached product into the Phase 4 area). Pursuant to that request, GCD provided the Town with an Overall Concept Plan that was included in the materials provided to the Town Council in June of 2021, a copy of which is attached as Exhibit A to this letter.

As identified on the vested and approved Preliminary Plan, the area now being advanced for development pursuant to GCD's Phase 4 application is identified as "MULTI-FAMILY" and "VILLAGE CENTER." GCD's Phase 4 application is entirely consistent with the approved Preliminary Plan. In addition, the adjustments contemplated by GCD's Phase 4 application are consistent with the RSPA and the flexibility contemplated thereby. In addition to the language from Section 11.07.141 of the Town Code cited above, Section 11.07.136 indicates that "development of the RSPA, because of its size, design, quality and consideration of market factors, will occur in multiple phases and will take several years to complete. Market circumstances are likely to change many times over the life of the development. Consequently, there are certain flexibilities built into the approval and development process to allow developers to be responsive to the changing expectations and requirements of the buyers and visitors . . . ." GCD's Phase 4 application, evaluated in the context of both the larger MPC and more specifically, the approved and vested Preliminary Plan for Shoreline, is entirely consistent with the RSPA and the "Town's Vested Laws" applicable pursuant to the requirements of the MDA.

The MDA establishes the "Maximum Residential Units" that can be developed within the MPC and the MPC is presently well within the stated maximum. Like the text of the RSPA, moreover, the MDA does not specifically dictate the location of that density. Rather, Section 3.5 of the MDA allows use of the "Maximum Residential Units in the development of any Subdivision so long as the density requested in the proposed Development Application is no greater than the maximum density allowed by the Zone and the RSPA Zoning Map for the proposed Subdivision." With respect to GCD's Phase 4 application, the approved Preliminary Plan is a further refinement of the RSPA Zoning Map expressly contemplated by the Subdivision Regulations in the Town Code, and, when considered with the RVMD, RMD, VC, RSF district designations for Shoreline, there can be no question that GCD's Phase 4 application is well below the maximum density permitted by the RSPA Zone, the MDA and illustrated and approved on the Preliminary Plan. Accordingly, the Planning Commission should promptly make its determination of MDA compatibility and forward a positive recommendation to the Town Council consistent with the limited discretion afforded both the Planning Commission and the Town Council pursuant to the requirements of the MDA and not beyond.

Finally, the Town's imposition of requirements to GCD's Phase 4 application that are not stated in the "Town's Vested Laws" violates the MPD, including requirements pertaining to traffic studies, open space and requirements unrelated to density determinations or consistency with the approved Preliminary Plan. Only those requirements set forth in the "Town's Vested Laws" are applicable to the MPC generally and Phase 4 specifically. Subsequently passed provision of the

current Town Code that do not fit within the narrowly defined exception set forth in the MPD, are simply inapplicable, as is the application of requirements based upon any provision of the current Town Code that was not present in the "Town's Vested Laws." The Town's review of applications advanced for the MPC pursuant to the MDA, moreover, should be constrained to the administrative review and approval contemplated by the MDA, which administrative review and approval should be conducted in the context of the "Town's Vested Laws" and not newly enacted provisions of the current Town Code that are entirely inapplicable.

For example, references to the Town's "current monotony code" included in the Staff Review for Phase 4 are misplaced. The Staff Review acknowledges the inapplicability of that provision, but then suggests an opportunity for a "negotiated design package." With all due respect to the "monotony code," it cannot be applied to attached residential products, like the homes proposed for Phase 4, or any future phase of Shoreline, and therefore should be omitted from any future Staff Review. GCD has proposed several different designs for Phase 4, but adding additional variation is not warranted. That said, if there are design elements that you want GCD to consider, please feel free to share your comments with GCD. As a matter of review and approval, however, both at the Planning Commission and Town Council, imposition of subsequently adopted rules and standards is not permitted pursuant to the MDA and, even if the current version of the Town Code were to be applied, the imposition of requirements on GCD's application not expressly stated in the current Town Code violates Section 10-9a-509 of the Utah Municipal Land Use, Development, and Management Act.

Respectfully,

Robert A. McConnell

cc: Michael Stewart

Attachment

Shoreline Phase IV Unit Summary

Scenario	Unit Count	Total Acres	Units/Acre
Minimum	140	25.74	5.4
Moderate	186	25.74	7.2
Maximum	232	25.74	9.0

SHORELINE - PHASE 4

SHEET INDEX

C1 COVER SHEET/ SITE PLAN
SHORELINE PHASE 4 PLAT BOUNDARY SURVEY
C2 DEMOLITION PLAN
C3 SNOW PLAN
C4 SIGNAGE PLAN
U1 OVERALL UTILITY PLAN
U2 GAS & POWER PLAN
G1 OVERALL GRADING & DRAINAGE PLAN
G2 OVERALL DRAINAGE PIPE LAYOUT
G3 WALL GRADING PLAN
PP1 VANTAGE LANE PLAN/PROFILE
PP2 VANTAGE LANE PLAN/PROFILE
PP3 VANTAGE LANE PLAN/PROFILE
PP4 GROVES EDGE DRIVE PLAN/PROFILE
PP5 GROVES EDGE DRIVE PLAN/PROFILE
PP6 GROVES EDGE DRIVE PLAN/PROFILE
PP7 BINGHAM LANE PLAN/PROFILE
PP8 ERIC COURT PLAN/PROFILE
PP9 RECREATION DRIVE PLAN/PROFILE
PP10 RECREATION DRIVE PLAN/PROFILE
PP11 RECREATION DRIVE PLAN/PROFILE
PP12 WAKE RIDER CIRCLE PLAN/PROFILE
PP13 STORM DRAIN PLAN/PROFILE
PP14 SEWER PLAN/PROFILE
PP15 DRAINAGE PIPE PLAN/PROFILE
PP16 DRAINAGE PIPE PLAN/PROFILE
PP17 UDOT DRAINAGE PIPE PLAN/PROFILE
PP18 UDOT DRAINAGE PIPE PLAN/PROFILE
PP19 UDOT DRAINAGE PIPE PLAN/PROFILE
D1 DETAIL SHEET
D2 DETAIL SHEET
D3 DETAIL SHEET

GENERAL NOTES:

1. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH APWA STANDARDS AS MODIFIED BY THE TOWN OF HIDEOUT.
2. SEWER AND WATER SHALL BE INSTALLED IN ACCORDANCE WITH JSSD STANDARDS.
3. DUE TO THE FACT THAT HIDEOUT HAS SIGNIFICANTLY HIGH WATER PRESSURE PRIOR TO THE PRV STATIONS, ALL HOMES AT HIDEOUT ARE REQUIRED TO INSTALL A PRV VALVE TO PROTECT THE HOME FROM FAILURE OF A PRV STATION.
4. STOP SIGNS, STREET LIGHTS, AND STREET SIGNS AR SHOWN BY SYMBOLS ON THE DRAWINGS. REFER TO THE LEGEND.
5. ALL FIRE HYDRANTS HAVE A LIGHT LOCATION WITHIN 10' TO AID IN THEIR LOCATIONS DURING THE WINTER.
6. WATER DISTRIBUTION DESIGN SHALL MEET THE MINIMUM REQUIREMENTS OF THE UTAH DIVISION OF DRINKING WATER.
7. 8" & 12" CULINARY WATER LINES ARE TO BE C-900 PVC
8. A WORK-IN ROW PERMIT MUST BE OBTAINED FROM THE TOWN PRIOR TO ROADWAY CUTS.
9. ALL DRIVEWAYS ARE 20' MIN. LENGTH.

GUEST PARKING:

72 GUEST PARKING STALLS SHOWN IN THIS PHASE.

PROJECT MATERIAL SUBMITTAL NOTE:

CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL MATERIALS TO BE INCORPORATED ON THE PROJECT TO THE TOWN ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION.

SURVEYOR:
LEVEL OF FOCUS, INC
1334 East 1150 South
Spanish Fork, Utah 84660
(801) 319-5441

811 Know what's below. Call before you dig.

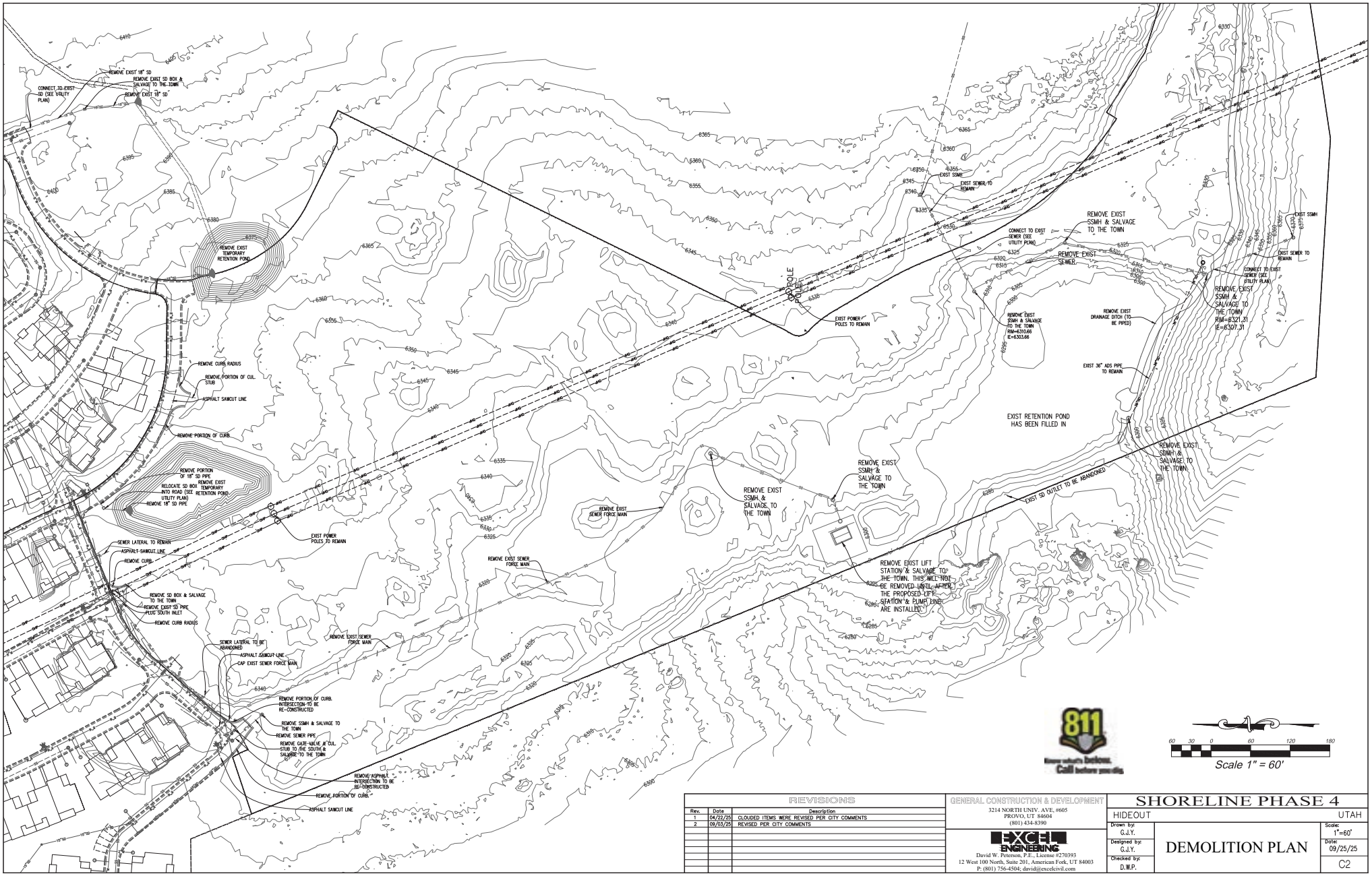
BENCH MARK	REVISIONS		
SE CORNER, SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN ELEVATION = 6789.15'	Rev.	Date	Description

GENERAL CONSTRUCTION & DEVELOPMENT
3214 NORTH UNIV. AVE, #605
PROVO, UT 84604
(801) 434-8390

EXCEL ENGINEERING
David W. Peterson, P.E., License #270393
12 West 100 North, Suite 201, American Fork, UT 84003
P: (801) 756-4504; david@excelcivil.com

SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.	COVER SHEET/ SITE PLAN	Scale: 1"=80'
Designed by: G.J.Y.		Date: 09/25/25
Checked by: D.W.P.		C1



REVISIONS		
Rev.	Date	Description
1	04/22/25	CLOUDED ITEMS WERE REVISED PER CITY COMMENTS
2	09/03/25	REVISED PER CITY COMMENTS

GENERAL CONSTRUCTION & DEVELOPMENT
3214 NORTH UNIV. AVE, #605
PROVO, UT 84604
(801) 434-8390

EXCEL ENGINEERING
David W. Peterson, P.E., License #270393
12 West 100 North, Suite 201, American Fork, UT 84003
P: (801) 756-4504; david@excelcivil.com

SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

DEMOLITION PLAN

Scale: 1"=60'
Date: 09/25/25
C2

SHORELINE - PHASE 4 SNOW PLAN

SNOW REMOVAL DISCUSSION:

SNOW STORAGE AREAS SHOWN IN CLOUDED BUBBLES.
HIDEOUT TOWN IS RESPONSIBLE FOR PLOWING THE PUBLIC ROADS.
THE SNOW CAN BE PUSHED TO THE NOTED STORAGE AREAS.
PRIVATE OWNERS ARE RESPONSIBE FOR CLEARING THEIR OWN DRIVEWAYS.
IF THE SMALLER SNOW STORAGE AREAS BETWEEN DRIVEWAYS START TO GET FULL, THE SHORELINE IV HOA WILL BE RESPONSIBLE TO HIRE CONTRACTORS TO MOVE THE SNOW TO LARGER SNOW STORAGE SITES IN THE SITE AS NOTED.

SNOW STORAGE CAPACITY CALCULATIONS:

*SNOW FALL DATA PER NOAA

YEAR	RANGE (INCHES)
2024	120–180
2023	180–240
2022	96–120
2021	48–72
2020	120–180

5 YEAR AVG ANNUAL SNOW FALL DEPTH OF ~135 INCHES

ASSUMED SNOW COMPACTION OF 25%

TYPICAL DRIVEWAY AREA FOR A 6–PLEX OF 3000 SF X 135" X 0.25 = ~8400 CF

EACH CLOUD BUBBLE ON THE PLAN IS ~850 SF AND AT 4' HIGH COULD STORE 3400 CF WHICH WOULD BE EQUIVALENT TO 54" OF THE ANNUAL SNOW FALL DEPTH

ADDITIONAL SNOW STORAGE ABOVE THE 4' STORAGE HEIGHT WOULD BE MOVED TO OTHER OPEN SPACE AREAS AS SHOWN ON THIS PLAN.

811 Know what's below. Call before you dig.

Scale 1" = 80'

REVISIONS		
Rev.	Date	Description

GENERAL CONSTRUCTION & DEVELOPMENT
3214 NORTH UNIV. AVE, #605
PROVO, UT 84604
(801) 434-8390

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David W. Peterson, P.E., License #270393
12 West 100 North, Suite 201, American Fork, UT 84003
P: (801) 756-4504; david@excelcivil.com

SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

SNOW PLAN

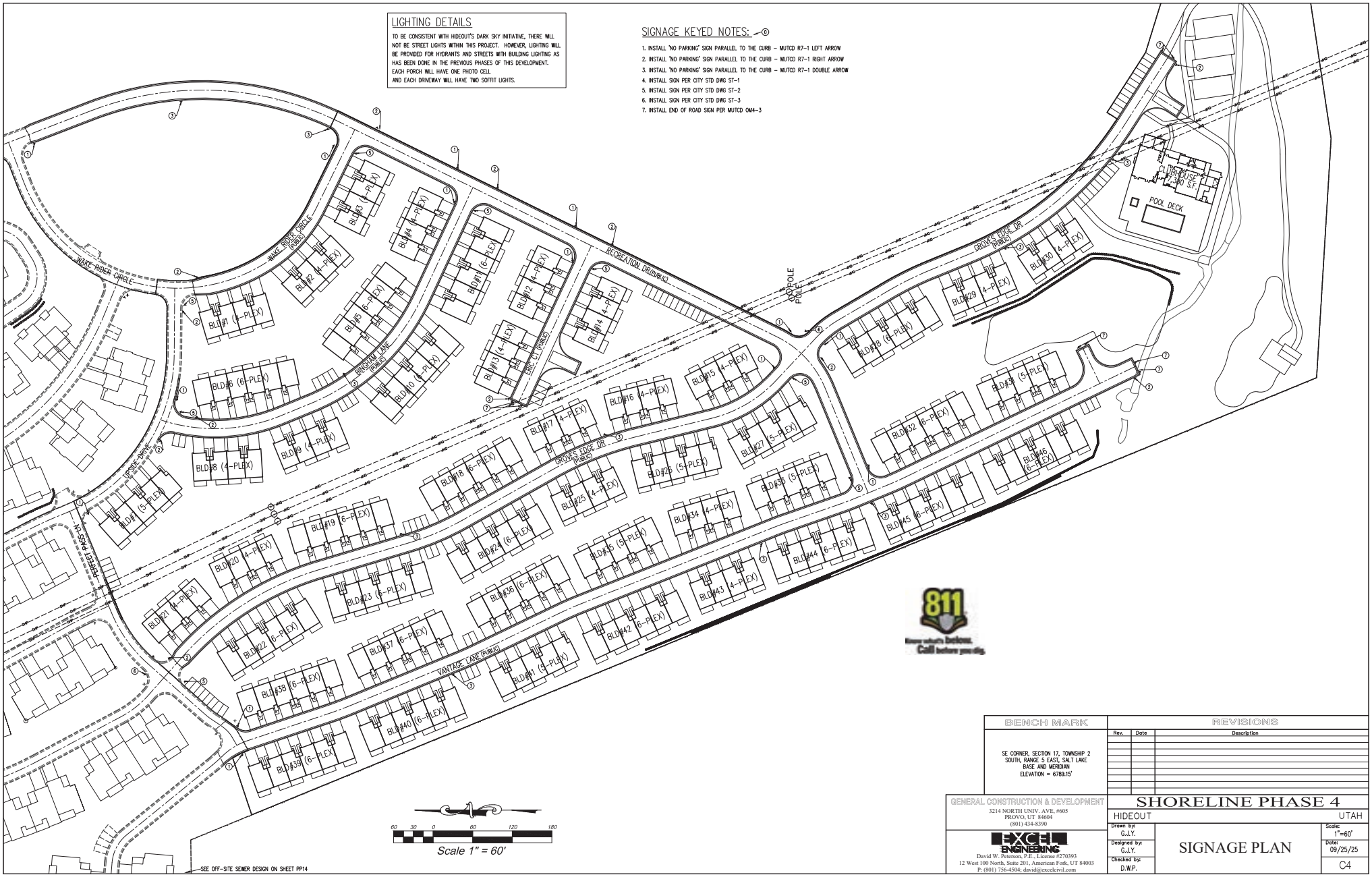
Scale: 1"=80'
Date: 09/25/25
C3

LIGHTING DETAILS

TO BE CONSISTENT WITH HIDEOUT'S DARK SKY INITIATIVE, THERE WILL NOT BE STREET LIGHTS WITHIN THIS PROJECT. HOWEVER, LIGHTING WILL BE PROVIDED FOR HYDRANTS AND STREETS WITH BUILDING LIGHTING AS HAS BEEN DONE IN THE PREVIOUS PHASES OF THIS DEVELOPMENT. EACH PORCH WILL HAVE ONE PHOTO CELL AND EACH DRIVEWAY WILL HAVE TWO SOFFIT LIGHTS.

SIGNAGE KEYED NOTES:

1. INSTALL 'NO PARKING' SIGN PARALLEL TO THE CURB – MUTCD R7-1 LEFT ARROW
2. INSTALL 'NO PARKING' SIGN PARALLEL TO THE CURB – MUTCD R7-1 RIGHT ARROW
3. INSTALL 'NO PARKING' SIGN PARALLEL TO THE CURB – MUTCD R7-1 DOUBLE ARROW
4. INSTALL SIGN PER CITY STD DWG ST-1
5. INSTALL SIGN PER CITY STD DWG ST-2
6. INSTALL SIGN PER CITY STD DWG ST-3
7. INSTALL END OF ROAD SIGN PER MUTCD OM4-3



BENCH MARK	REVISIONS		
SE CORNER, SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN ELEVATION = 6789.15'	Rev.	Date	Description

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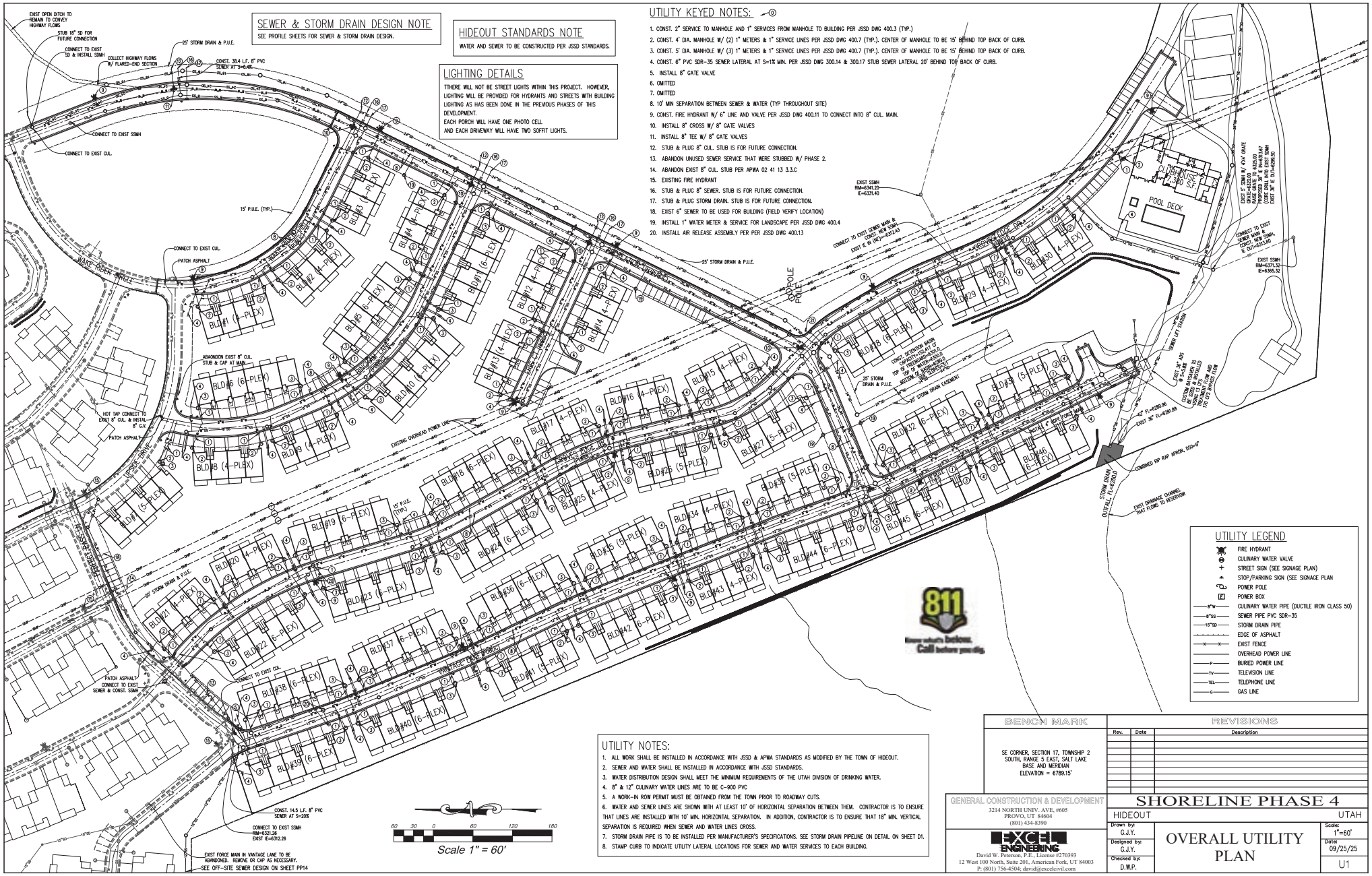
P: (801) 756-4504; david@excelcivil.com

SHORELINE PHASE 4

HIDEOUT UTAH

SIGNAGE PLAN

Drawn by: G.J.Y.	Scale: 1"=60'
Designed by: G.J.Y.	Date: 09/25/25
Checked by: D.W.P.	C4



SEWER & STORM DRAIN DESIGN NOTE

SEE PROFILE SHEETS FOR SEWER & STORM DRAIN DESIGN.

HIDEOUT STANDARDS NOTE

WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

LIGHTING DETAILS

THERE WILL NOT BE STREET LIGHTS WITHIN THIS PROJECT. HOWEVER, LIGHTING WILL BE PROVIDED FOR HYDRANTS AND STREETS WITH BUILDING LIGHTING AS HAS BEEN DONE IN THE PREVIOUS PHASES OF THIS DEVELOPMENT.
EACH PORCH WILL HAVE ONE PHOTO CELL
AND EACH DRIVEWAY WILL HAVE TWO SOFFIT LIGHTS.

UTILITY KEYED NOTES:

1. CONST. 2" SERVICE TO MANHOLE AND 1" SERVICES FROM MANHOLE TO BUILDING PER JSSD DWG 400.3 (TYP.)
2. CONST. 4' DIA. MANHOLE W/ (2) 1" METERS & 1" SERVICE LINES PER JSSD DWG 400.7 (TYP.). CENTER OF MANHOLE TO BE 15' BEHIND TOP BACK OF CURB.
3. CONST. 5' DIA. MANHOLE W/ (3) 1" METERS & 1" SERVICE LINES PER JSSD DWG 400.7 (TYP.). CENTER OF MANHOLE TO BE 15' BEHIND TOP BACK OF CURB.
4. CONST. 6" PVC SDR-35 SEWER LATERAL AT S=1% MIN. PER JSSD DWG 300.14 & 300.17 STUB SEWER LATERAL 20' BEHIND TOP BACK OF CURB.
5. INSTALL 8" GATE VALVE
6. OMITTED
7. OMITTED
8. 10' MIN SEPARATION BETWEEN SEWER & WATER (TYP THROUGHOUT SITE)
9. CONST. FIRE HYDRANT W/ 6" LINE AND VALVE PER JSSD DWG 400.11 TO CONNECT INTO 8" CUL. MAIN.
10. INSTALL 8" CROSS W/ 8" GATE VALVES
11. INSTALL 8" TEE W/ 8" GATE VALVES
12. STUB & PLUG 8" CUL. STUB IS FOR FUTURE CONNECTION.
13. ABANDON UNUSED SEWER SERVICE THAT WERE STUBBED W/ PHASE 2.
14. ABANDON EXIST 8" CUL. STUB PER APWA 02 41 13 3.3.C
15. EXISTING FIRE HYDRANT
16. STUB & PLUG 8" SEWER. STUB IS FOR FUTURE CONNECTION.
17. STUB & PLUG STORM DRAIN. STUB IS FOR FUTURE CONNECTION.
18. EXIST 6" SEWER TO BE USED FOR BUILDING (FIELD VERIFY LOCATION)
19. INSTALL 1" WATER METER & SERVICE FOR LANDSCAPE PER JSSD DWG 400.4
20. INSTALL AIR RELEASE ASSEMBLY PER PER JSSD DWG 400.13

UTILITY LEGEND

- FIRE HYDRANT
- CULINARY WATER VALVE
- STREET SIGN (SEE SIGNAGE PLAN)
- STOP/PARKING SIGN (SEE SIGNAGE PLAN
- POWER POLE
- POWER BOX
- 8"W — CULINARY WATER PIPE (DUCTILE IRON CLASS 50)
- 8"SS — SEWER PIPE PVC SDR-35
- 15"SD — STORM DRAIN PIPE
- EDGE OF ASPHALT
- X — EXIST FENCE
- OVERHEAD POWER LINE
- P — BURIED POWER LINE
- TV — TELEVISION LINE
- TEL — TELEPHONE LINE
- G — GAS LINE

UTILITY NOTES:

1. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH JSSD & APWA STANDARDS AS MODIFIED BY THE TOWN OF HIDEOUT.
2. SEWER AND WATER SHALL BE INSTALLED IN ACCORDANCE WITH JSSD STANDARDS.
3. WATER DISTRIBUTION DESIGN SHALL MEET THE MINIMUM REQUIREMENTS OF THE UTAH DIVISION OF DRINKING WATER.
4. 8" & 12" CULINARY WATER LINES ARE TO BE C-900 PVC
5. A WORK-IN ROW PERMIT MUST BE OBTAINED FROM THE TOWN PRIOR TO ROADWAY CUTS.
6. WATER AND SEWER LINES ARE SHOWN WITH AT LEAST 10' OF HORIZONTAL SEPARATION BETWEEN THEM. CONTRACTOR IS TO ENSURE THAT LINES ARE INSTALLED WITH 10' MIN. HORIZONTAL SEPARATION. IN ADDITION, CONTRACTOR IS TO ENSURE THAT 18" MIN. VERTICAL SEPARATION IS REQUIRED WHEN SEWER AND WATER LINES CROSS.
7. STORM DRAIN PIPE IS TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. SEE STORM DRAIN PIPELINE ON DETAIL ON SHEET D1.
8. STAMP CURB TO INDICATE UTILITY LATERAL LOCATIONS FOR SEWER AND WATER SERVICES TO EACH BUILDING.

BENCH MARK

SE CORNER, SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
ELEVATION = 6789.15'

REVISIONS

Rev.	Date	Description

GENERAL CONSTRUCTION & DEVELOPMENT
3214 NORTH UNIV. AVE, #605
PROVO, UT 84604
(801) 434-8390

EXCEL ENGINEERING
David W. Peterson, P.E., License #270393
12 West 100 North, Suite 201, American Fork, UT 84003
P: (801) 756-4504; david@excelcivil.com

SHORELINE PHASE 4

HIDEOUT UTAH

OVERALL UTILITY PLAN

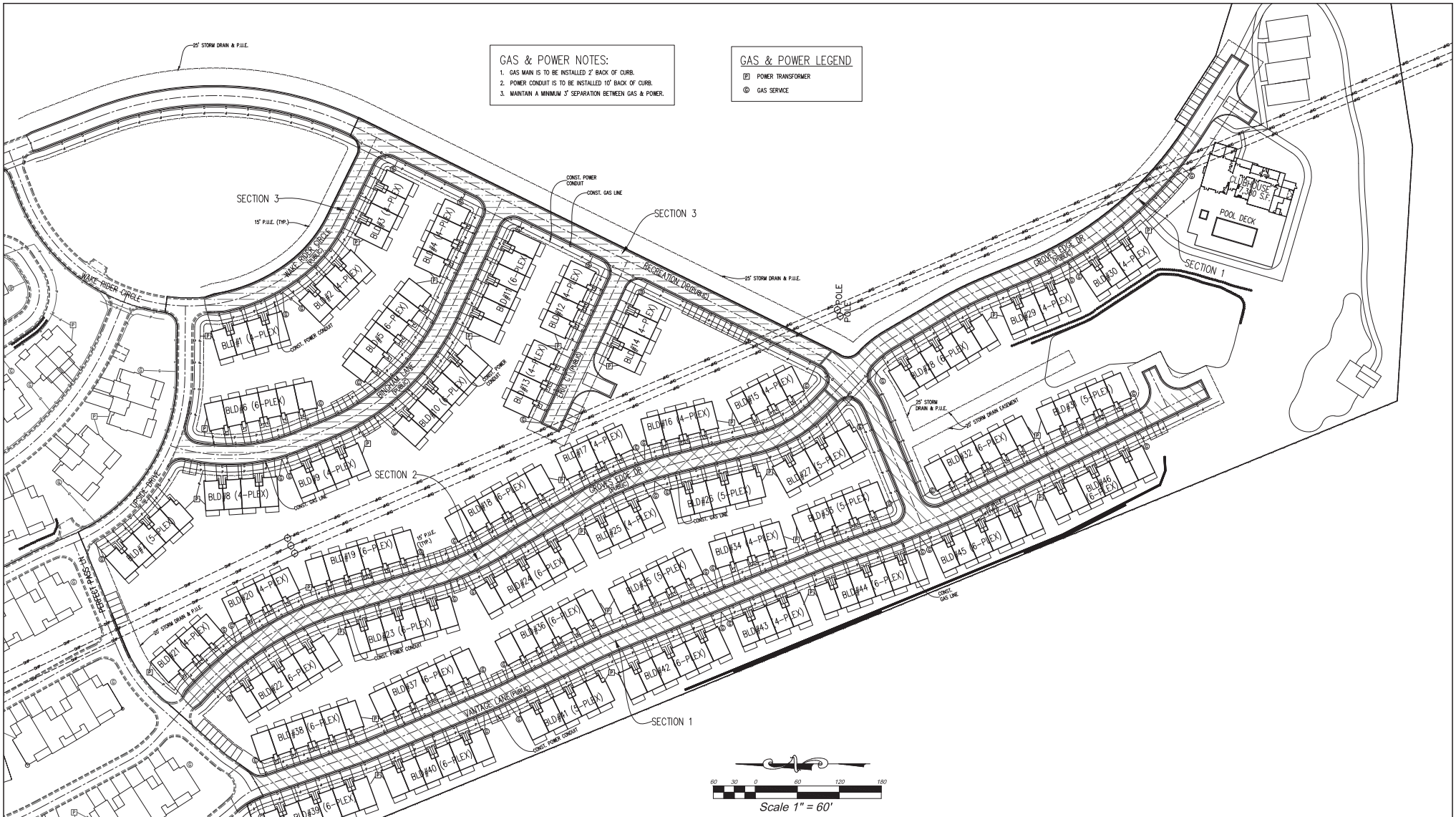
Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.
Scale: 1"=60'
Date: 09/25/25
U1

GAS & POWER NOTES:

1. GAS MAIN IS TO BE INSTALLED 2' BACK OF CURB.
2. POWER CONDUIT IS TO BE INSTALLED 10' BACK OF CURB.
3. MAINTAIN A MINIMUM 3' SEPARATION BETWEEN GAS & POWER.

GAS & POWER LEGEND

- (P) POWER TRANSFORMER
- (G) GAS SERVICE



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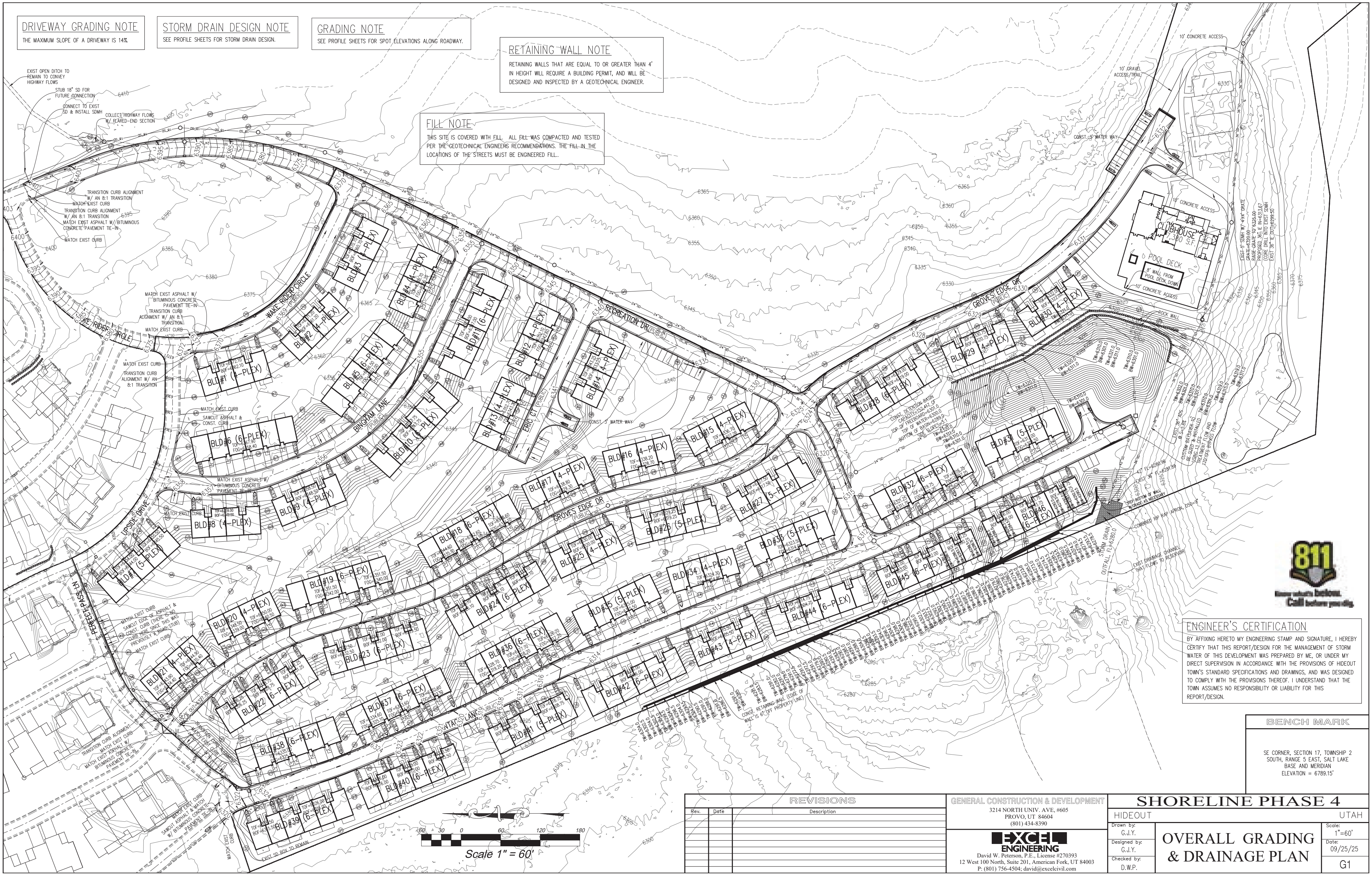
SHORELINE PHASE 4

HIDEOUT UTAH

GAS & POWER PLAN

Drawn by:	G.J.Y.
Designed by:	G.J.Y.
Checked by:	D.W.P.
Scale:	1"=60'
Date:	09/25/25
	U2

Item # 3.


DRIVEWAY GRADING NOTE
THE MAXIMUM SLOPE OF A DRIVEWAY IS 14%.
STORM DRAIN DESIGN NOTE
SEE PROFILE SHEETS FOR STORM DRAIN DESIGN.
GRADING NOTE
SEE PROFILE SHEETS FOR SPOT ELEVATIONS ALONG ROADWAY.
RETAINING WALL NOTE
RETAINING WALLS THAT ARE EQUAL TO OR GREATER THAN 4' IN HEIGHT WILL REQUIRE A BUILDING PERMIT, AND WILL BE DESIGNED AND INSPECTED BY A GEOTECHNICAL ENGINEER.
FILL NOTE
THIS SITE IS COVERED WITH FILL. ALL FILL WAS COMPACTED AND TESTED PER THE GEOTECHNICAL ENGINEERS RECOMMENDATIONS. THE FILL IN THE LOCATIONS OF THE STREETS MUST BE ENGINEERED FILL.
WAKE RIDER CIRCLE
RECREATION DR
GROVES EDGE DR
BINGHAM LANE
ERIC CT
UPSIDE DRIVE
PERFECT PASS LN
CLUBHOUSE
POOL DECK
ENGINEER'S CERTIFICATION
BY AFFIXING HERETO MY ENGINEERING STAMP AND SIGNATURE, I HEREBY CERTIFY THAT THIS REPORT/DESIGN FOR THE MANAGEMENT OF STORM WATER OF THIS DEVELOPMENT WAS PREPARED BY ME, OR UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE PROVISIONS OF HIDEOUT TOWN'S STANDARD SPECIFICATIONS AND DRAWINGS, AND WAS DESIGNED TO COMPLY WITH THE PROVISIONS THEREOF. I UNDERSTAND THAT THE TOWN ASSUMES NO RESPONSIBILITY OR LIABILITY FOR THIS REPORT/DESIGN.
BENCH MARK
SE CORNER, SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN
ELEVATION = 6789.15'
Scale 1" = 60'
REVISIONS
Rev. Date Description
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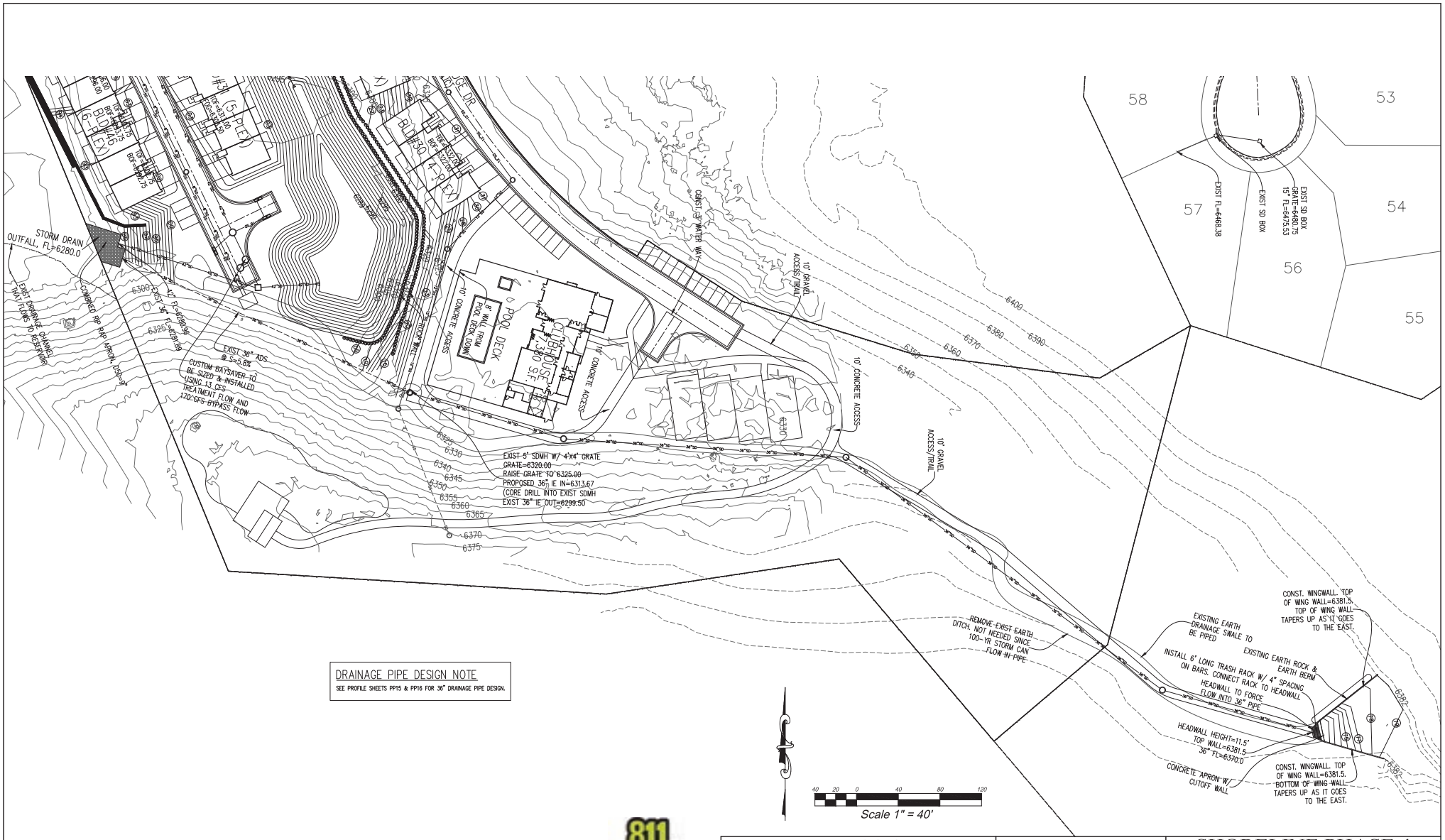
P: (801) 756-4504; david@excelcivil.com
SHORELINE PHASE 4
HIDEOUT
UTAH
Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.
OVERALL GRADING & DRAINAGE PLAN
Scale: 1"=60'
Date: 09/25/25
G1



DRAINAGE PIPE DESIGN NOTE

SEE PROFILE SHEETS PP15 & PP16 FOR 36" DRAINAGE PIPE DESIGN.

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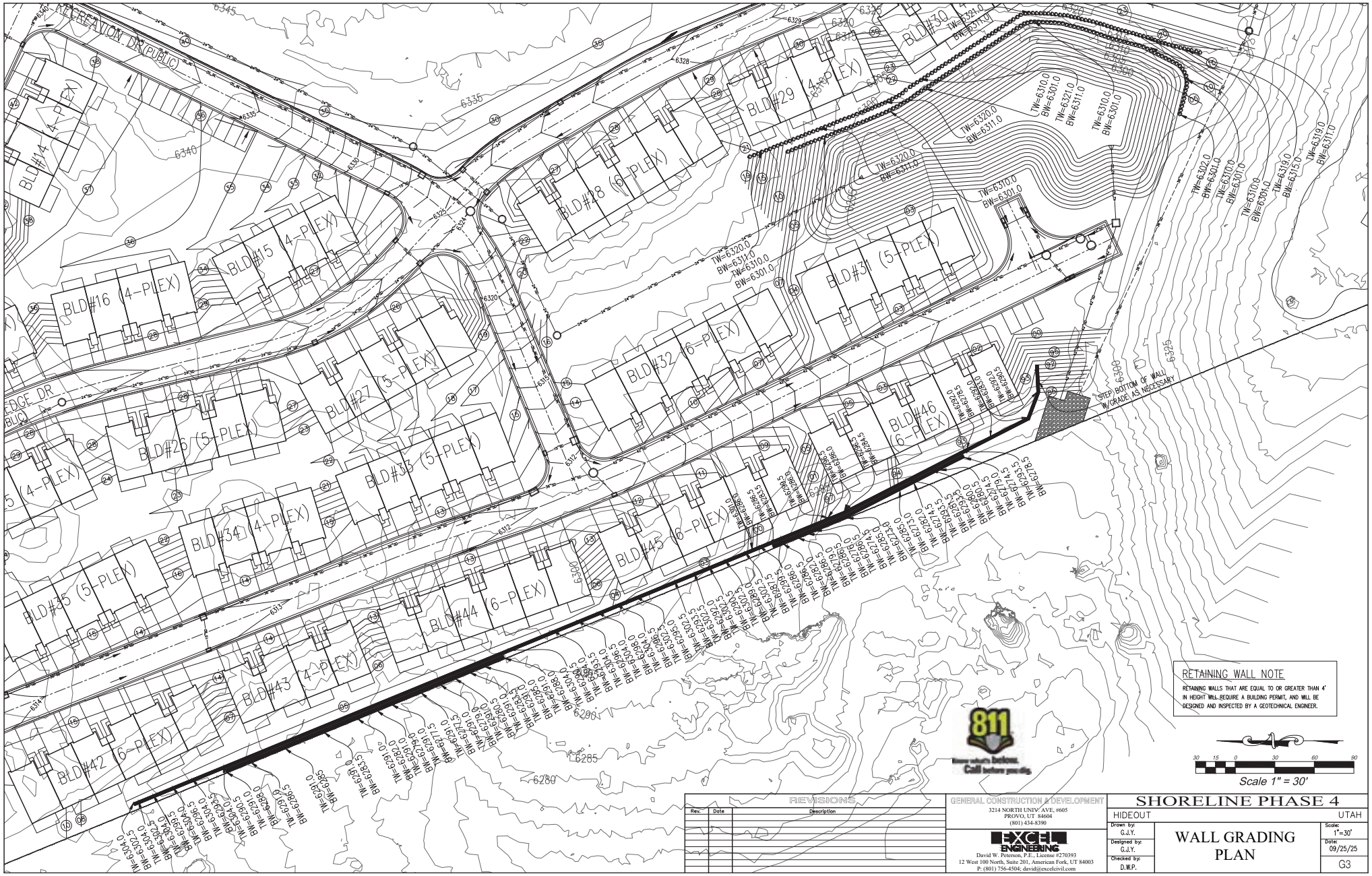
SHORELINE PHASE 4

HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

OVERALL DRAINAGE PIPE LAYOUT

Scale: 1"=40'
Date: 09/25/25
G2


RECREATION DR (PUBLIC)
BLD#14 (4-PLEX)
BLD#15 (4-PLEX)
BLD#16 (4-PLEX)
BLD#26 (5-PLEX)
BLD#27 (5-PLEX)
BLD#28 (6-PLEX)
BLD#29 (4-PLEX)
BLD#30
BLD#31 (5-PLEX)
BLD#32 (6-PLEX)
BLD#33 (5-PLEX)
BLD#34 (4-PLEX)
BLD#35 (5-PLEX)
BLD#42 (6-PLEX)
BLD#43 (4-PLEX)
BLD#44 (6-PLEX)
BLD#45 (6-PLEX)
BLD#46 (6-PLEX)
STEP BOTTOM OF WALL W/GRADE AS NECESSARY
RETAINING WALL NOTE
RETAINING WALLS THAT ARE EQUAL TO OR GREATER THAN 4' IN HEIGHT WILL REQUIRE A BUILDING PERMIT, AND WILL BE DESIGNED AND INSPECTED BY A GEOTECHNICAL ENGINEER.
811
Know what's below. Call before you dig.
Scale 1" = 30'
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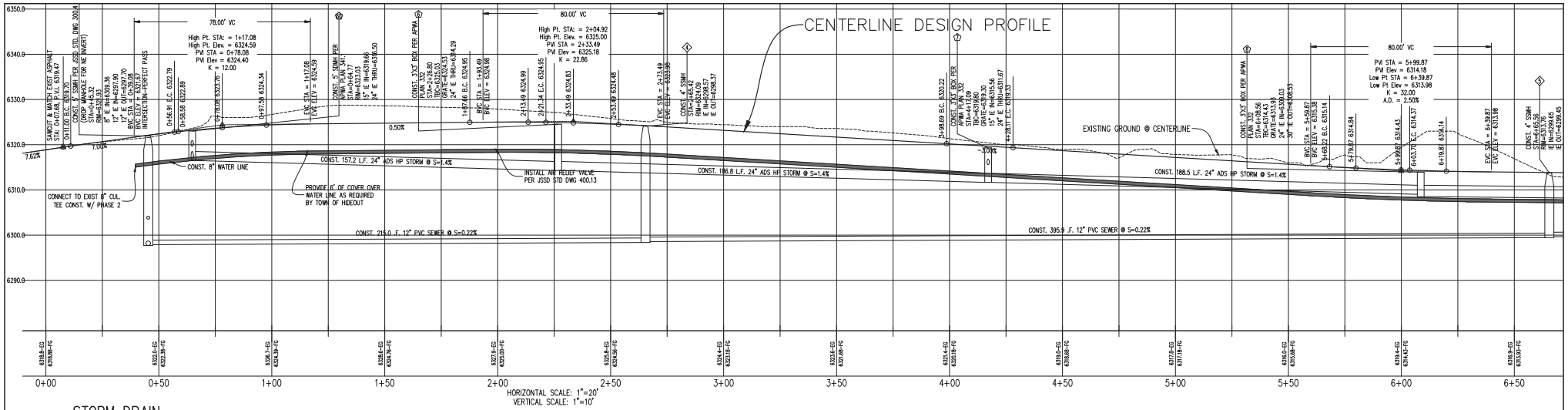
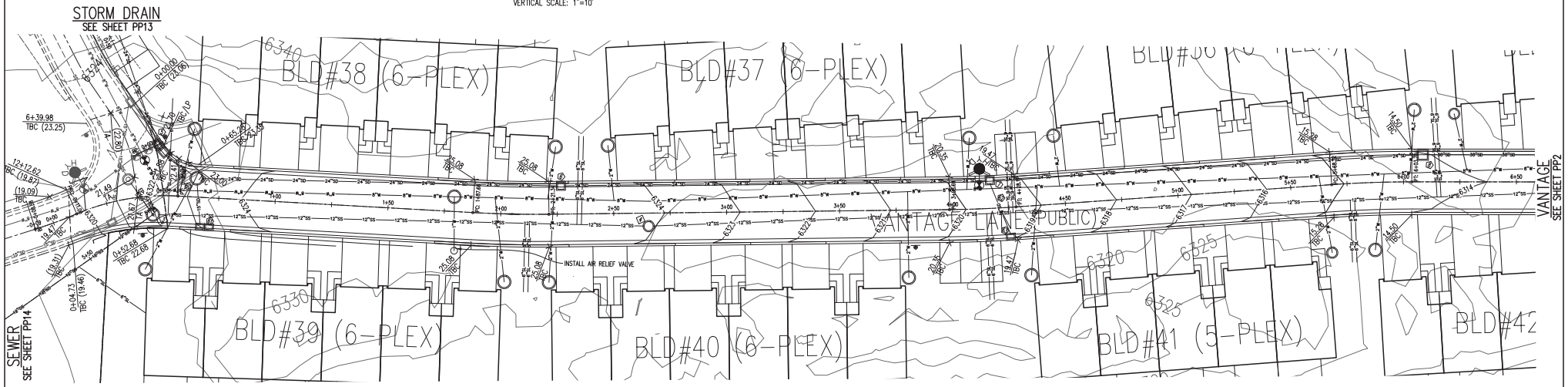
SHORELINE PHASE 4
HIDEOUT UTAH
Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.
WALL GRADING PLAN
Scale: 1"=30'
Date: 09/25/25
G3





VANTAGE LANE PLAN/PROFILE

VERTICAL CURVE DESIGN STANDARDS NOTE:

VERTICAL CURVES ALONG SHORELINE DRIVE & SHORELINE COURT WERE DESIGNED PER AASHTO STANDARDS FOR A 25 MPH SPEED LIMIT ROAD DESIGN. THE CREST VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-76 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS. THE SAG VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-79 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

HIDEOUT STANDARDS NOTE

WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

STORM DRAIN KEYED NOTES

*SEE PROFILE SHEETS FOR ANY STORM DRAIN NOT CALLED OUT IN KEYED NOTES

62. CONST. 24.3 LF. 15" ADS HP STORM @ S=1.0%

63. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6319.56, GRATE=6319.06, IE OUT=6315.81

20 10 0 20 40 60

Scale 1" = 20'

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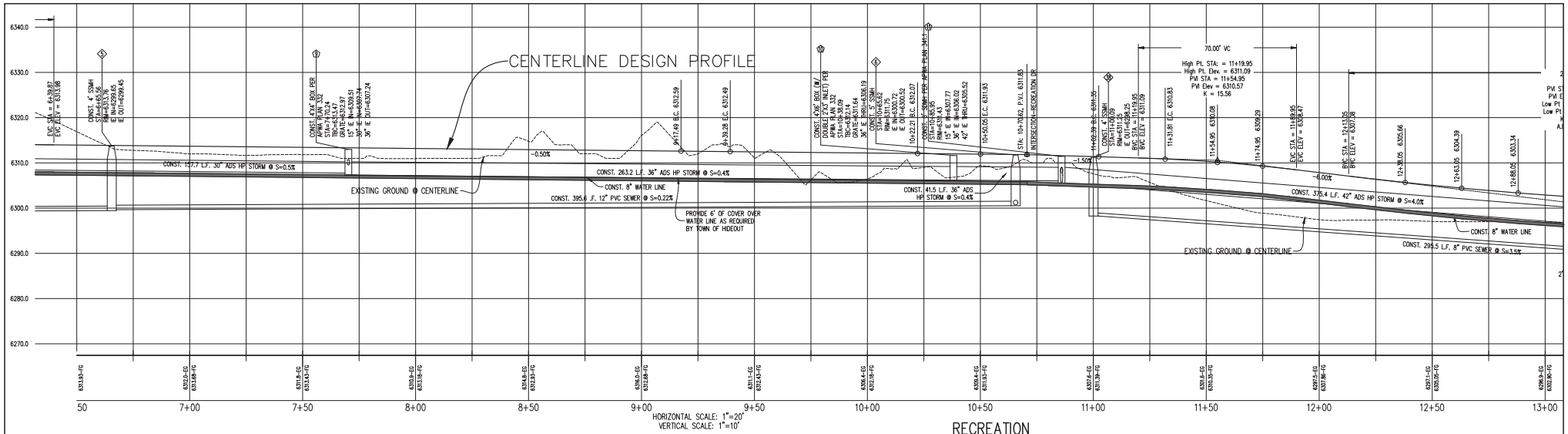
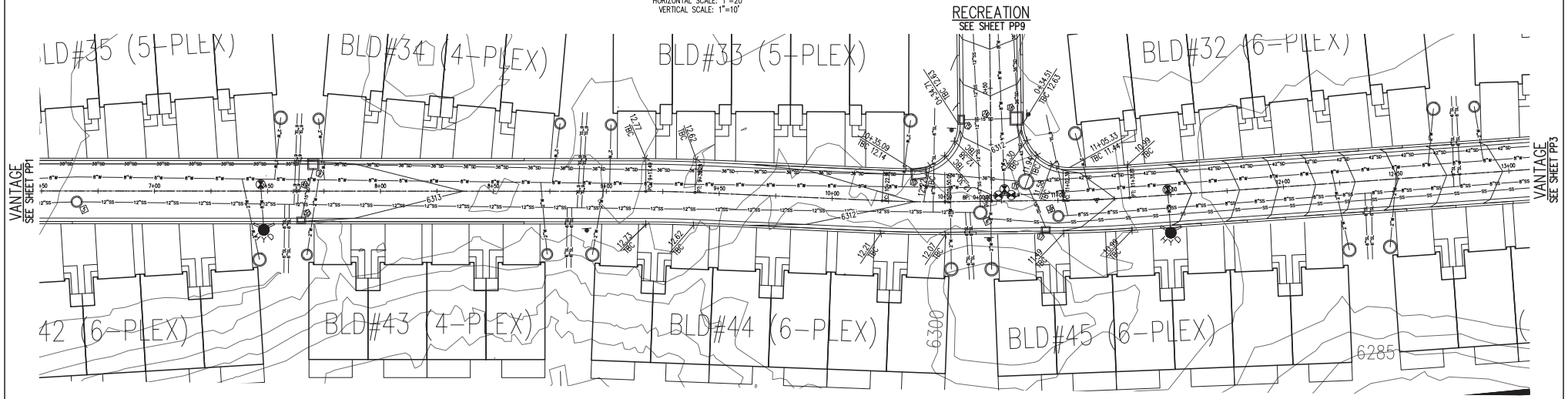
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

VANTAGE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP1





VATNAGE LANE PLAN/PROFILE

Scale 1" = 20'

HIDEOUT STANDARDS NOTE

WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

STORM DRAIN KEYED NOTES

*SEE PROFILE SHEETS FOR ANY STORM DRAIN NOT CALLED OUT IN KEYED NOTES

49. CONST. 22.6 LF. 15" ADS HP STORM @ S=1.0%
50. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6313.49, GRATE=6312.99, IE OUT=6309.74
74. CONST. 21.0 LF. 15" ADS HP STORM @ S=1.0%
75. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6312.63, GRATE=6312.13, IE OUT=6308.88

VERTICAL CURVE DESIGN STANDARDS NOTE:

VERTICAL CURVES ALONG SHORELINE DRIVE & SHORELINE COURT WERE DESIGNED PER AASHTO STANDARDS FOR A 25 MPH SPEED LIMIT ROAD DESIGN. THE CREST VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-76 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS. THE SAG VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-79 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

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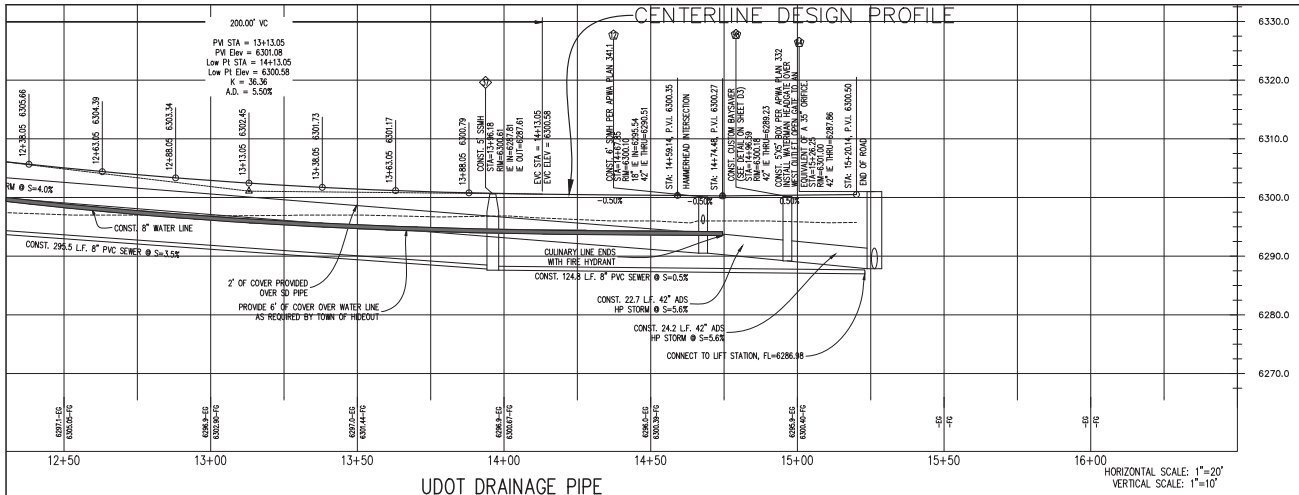
SHORELINE PHASE 4
HIDEOUT UTAH

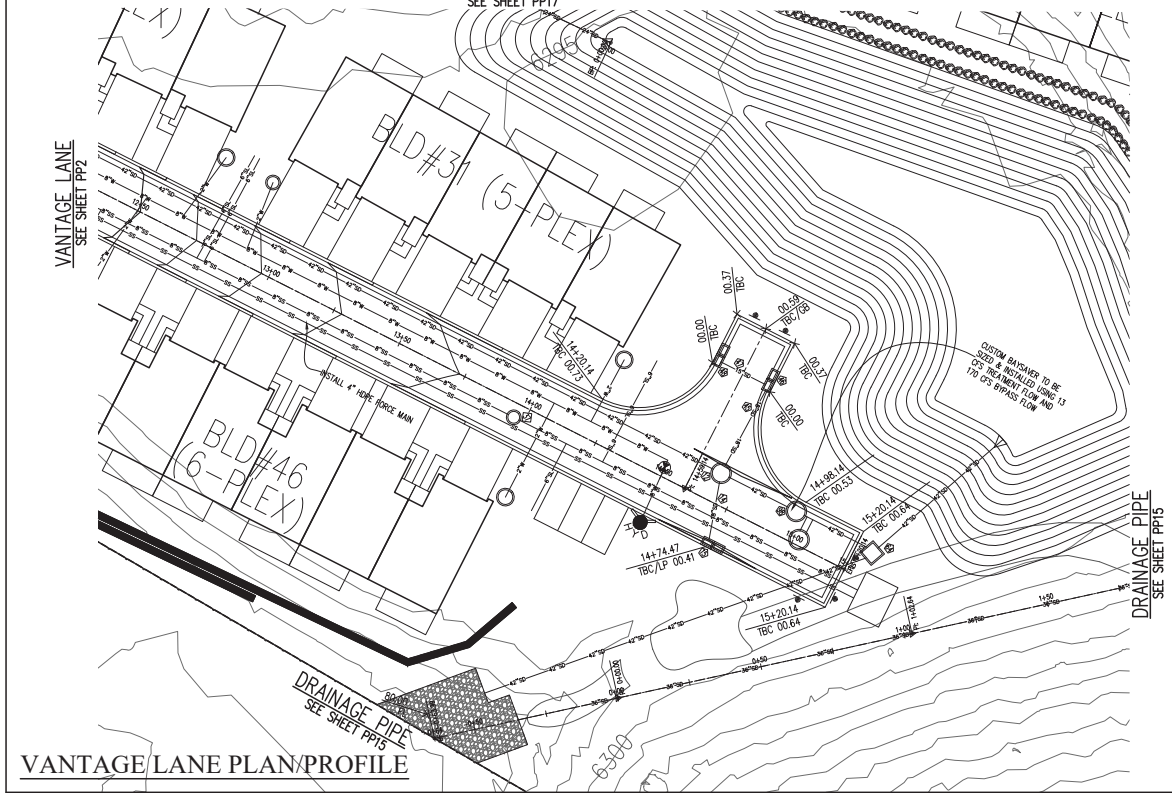
Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

VANTAGE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP2



UDOT DRAINAGE PIPE
SEE SHEET PP17



VANTAGE LANE PLAN/PROFILE

Scale 1" = 20'

STORM DRAIN KEYED NOTES

*SEE PROFILE SHEETS FOR ANY STORM DRAIN NOT CALLED OUT IN KEYED NOTES

14. CONST. 20.2 LF. 18" ADS HP STORM @ S=4.4%
15. CONST. DOUBLE CATCH BASIN PER APWA PLAN 315.2, TBC=6300.41, GRATE=6299.91, 18" IE OUT=6296.41
45. CONST. 29.3 LF. 18" ADS HP STORM @ S=1.0%
46. CONST. DOUBLE 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6300.00, GRATE=6299.50, 15" IE IN=6296.08, 18" IE OUT=6295.83
47. CONST. 17.0 LF. 15" ADS HP STORM @ S=1.0%
48. CONST. DOUBLE CATCH BASIN PER APWA PLAN 315.2, TBC=6300.00, GRATE=6299.50, IE OUT=6296.25

HIDEOUT STANDARDS NOTE

WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

VERTICAL CURVE DESIGN STANDARDS NOTE:

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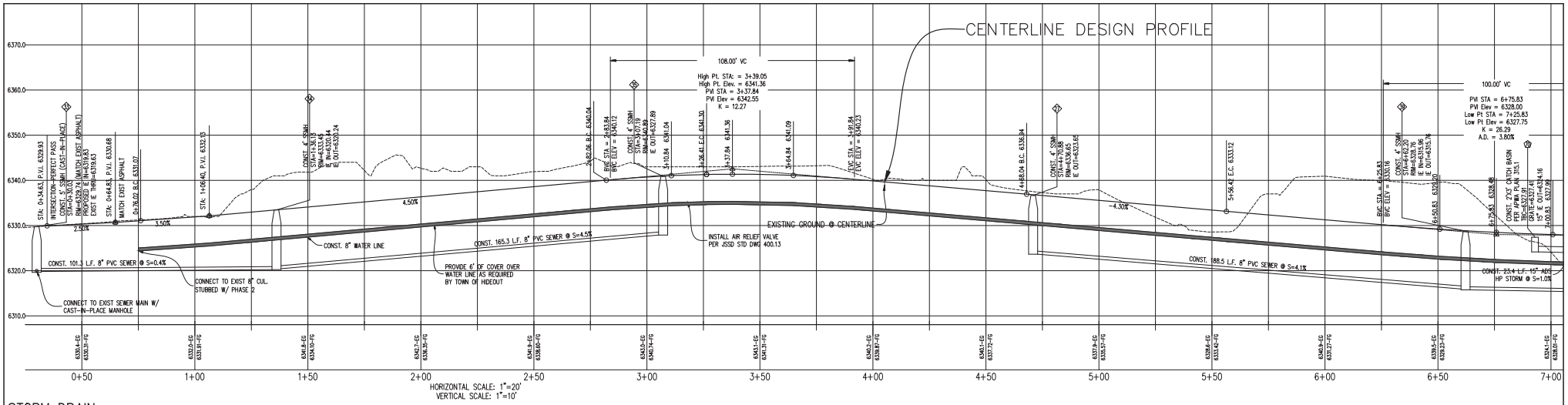
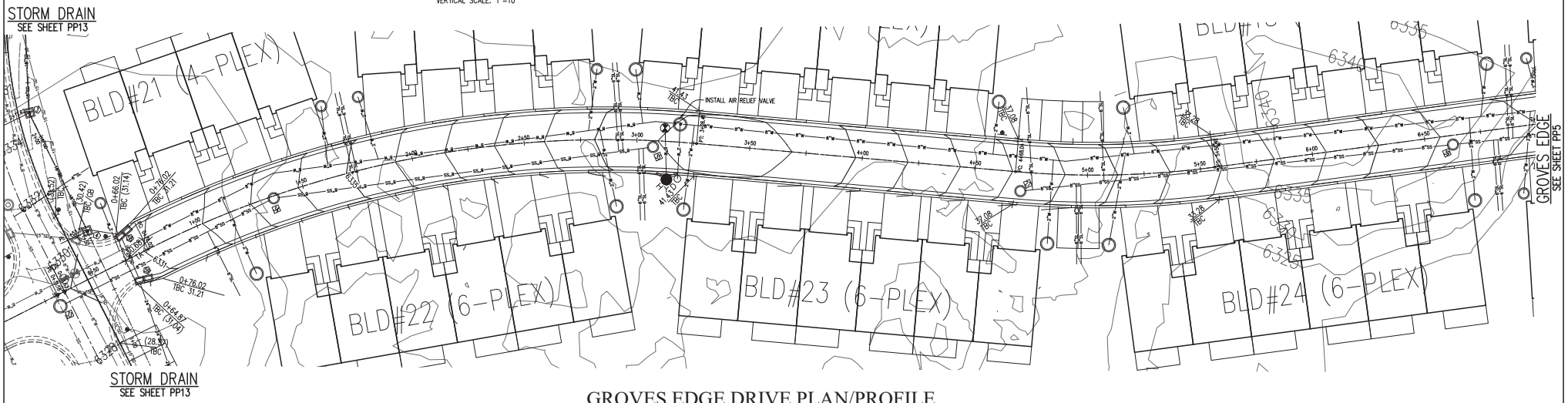
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

VANTAGE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP3





GROVES EDGE DRIVE PLAN/PROFILE

Scale 1" = 20'

VERTICAL CURVE DESIGN STANDARDS NOTE:
VERTICAL CURVES ALONG SHORELINE DRIVE & SHORELINE COURT WERE DESIGNED PER AASHTO STANDARDS FOR A 25 MPH SPEED LIMIT ROAD DESIGN. THE CREST VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-76 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS. THE SAG VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-79 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

HIDEOUT STANDARDS NOTE
WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

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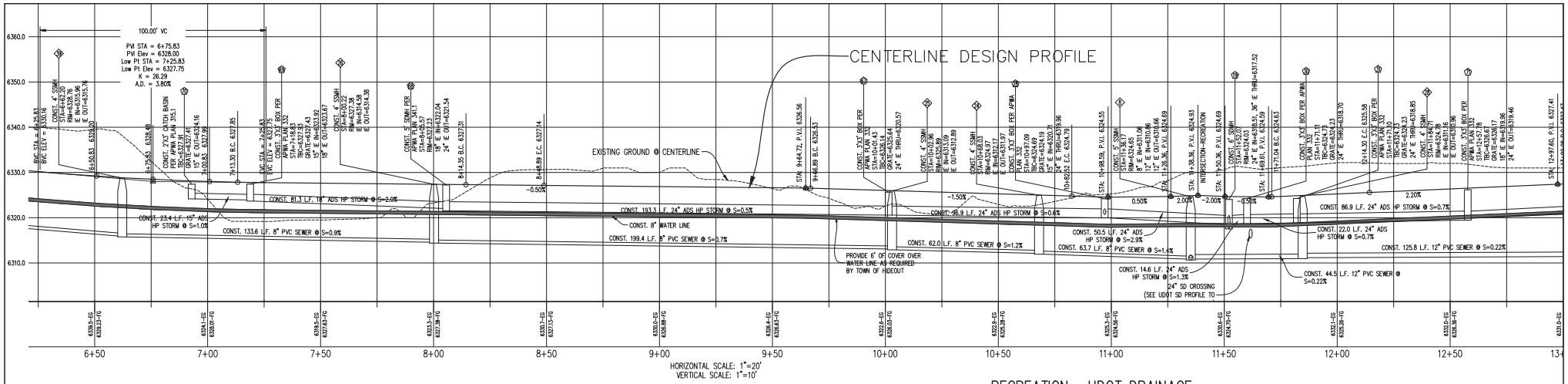
P: (801) 756-4504; david@excelcivil.com

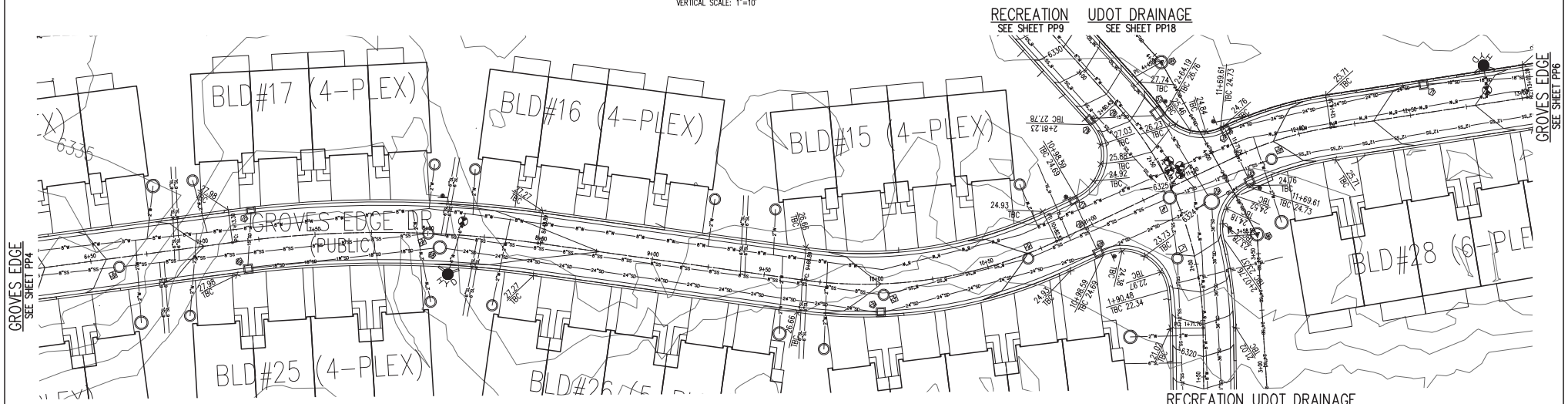
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

GROVES EDGE DRIVE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP4





GROVES EDGE DRIVE PLAN/PROFILE

Scale 1" = 20'

STORM DRAIN KEYED NOTES

*SEE PROFILE SHEETS FOR ANY STORM DRAIN NOT CALLED OUT IN KEYED NOTES

76. CONST. 23.0 LF. 15" ADS HP STORM @ S=1.0%
77. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6324.69, GRATE=6324.19, IE OUT=6320.94

VERTICAL CURVE DESIGN STANDARDS NOTE:

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HIDEOUT STANDARDS NOTE

WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

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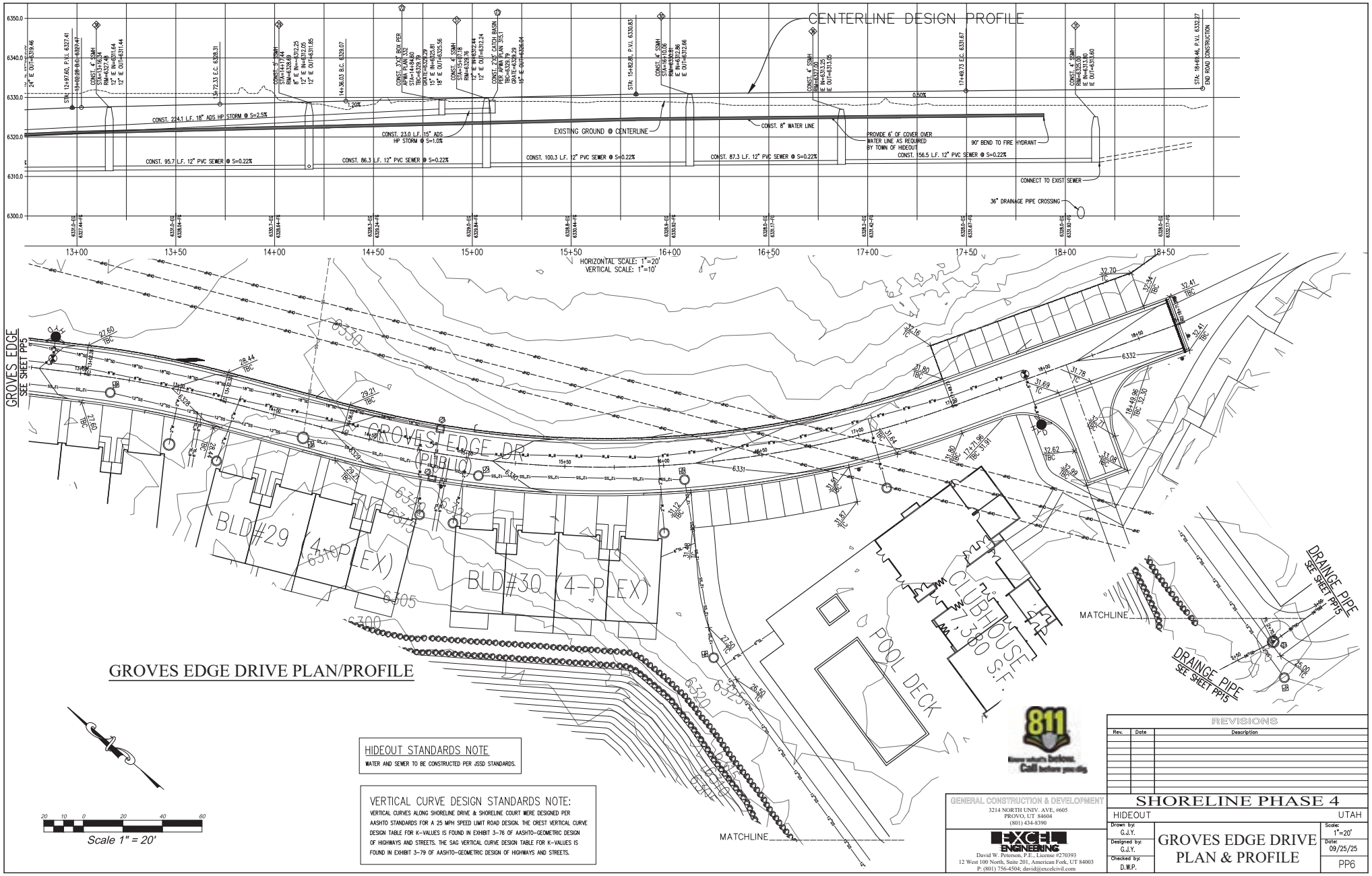
SHORELINE PHASE 4

HIDEOUT UTAH

GROVES EDGE DRIVE PLAN & PROFILE

Drawn by:	Scale:
G.J.Y.	1"=20'
Designed by: G.J.Y.	Date: 09/25/25
Checked by: D.W.P.	PP5



HIDEOUT STANDARDS NOTE

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REVISIONS

Rev.	Date	Description

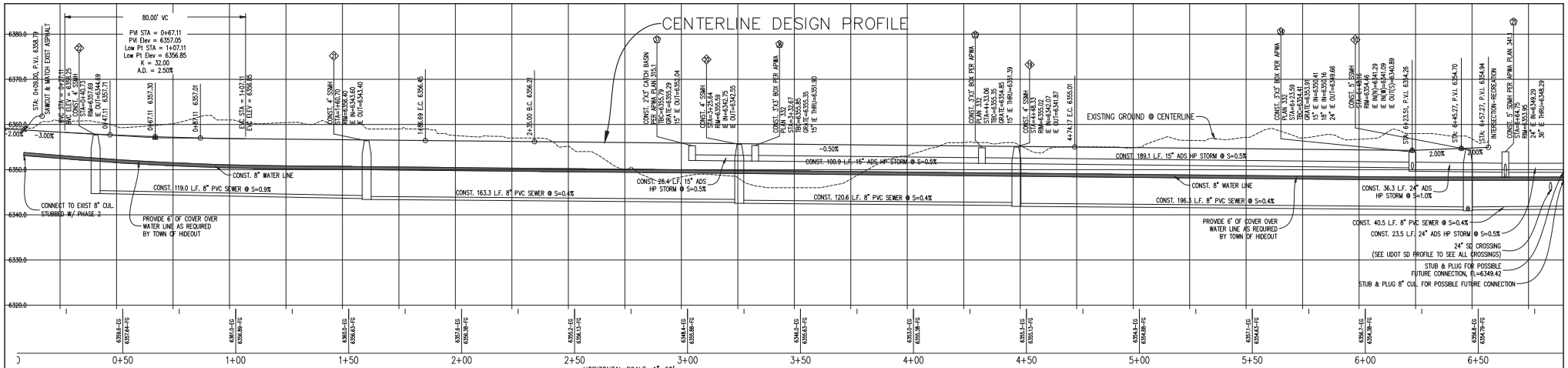
SHORELINE PHASE 4

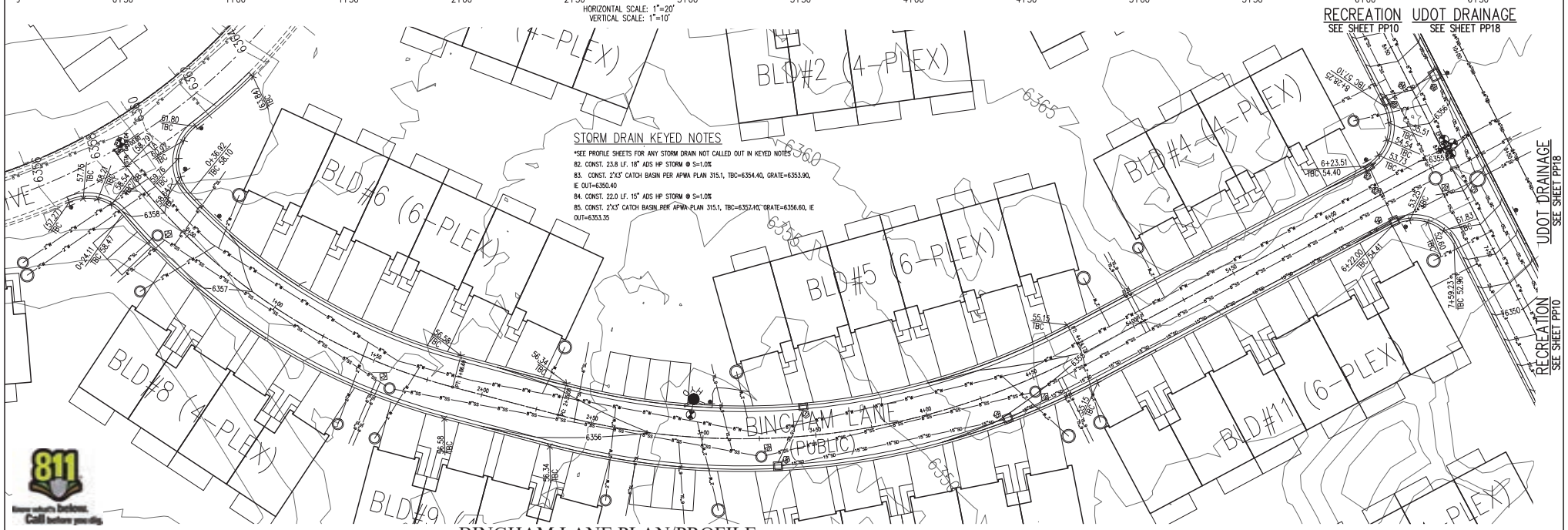
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

GROVES EDGE DRIVE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP6





BINGHAM LANE PLAN/PROFILE

VERTICAL CURVE DESIGN STANDARDS NOTE:
VERTICAL CURVES ALONG SHORELINE DRIVE & SHORELINE COURT WERE DESIGNED PER AASHTO STANDARDS FOR A 25 MPH SPEED LIMIT ROAD DESIGN. THE CREST VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-76 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS. THE SAG VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-79 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

Scale 1" = 20'

HIDEOUT STANDARDS NOTE
WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

REVISIONS		
Rev.	Date	Description

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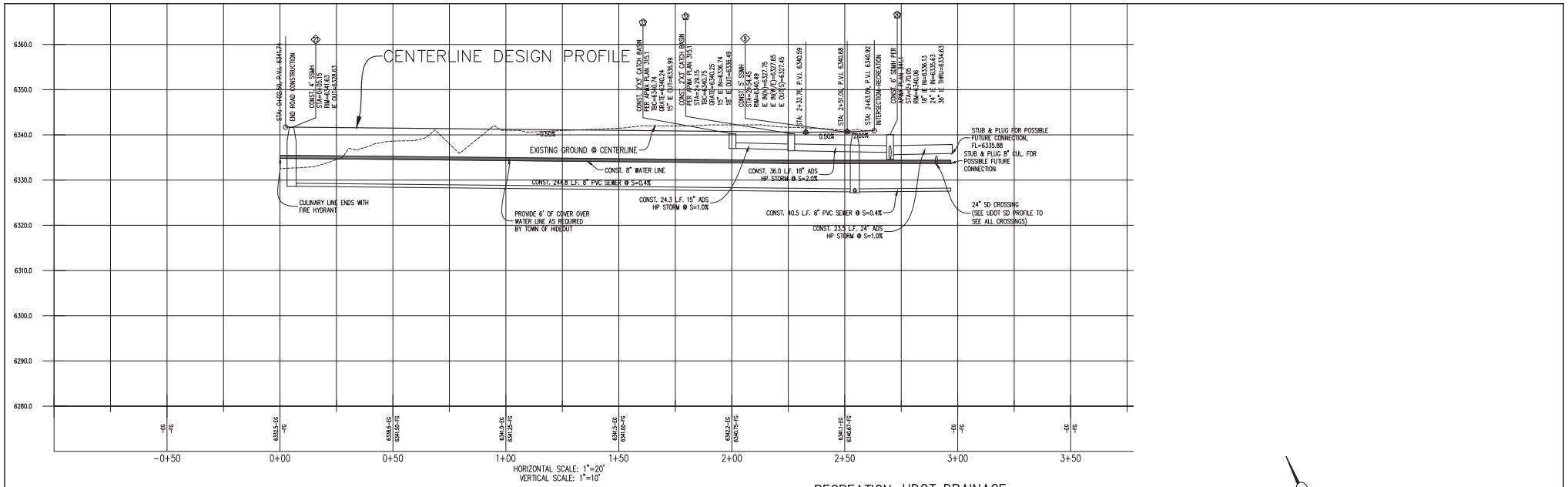
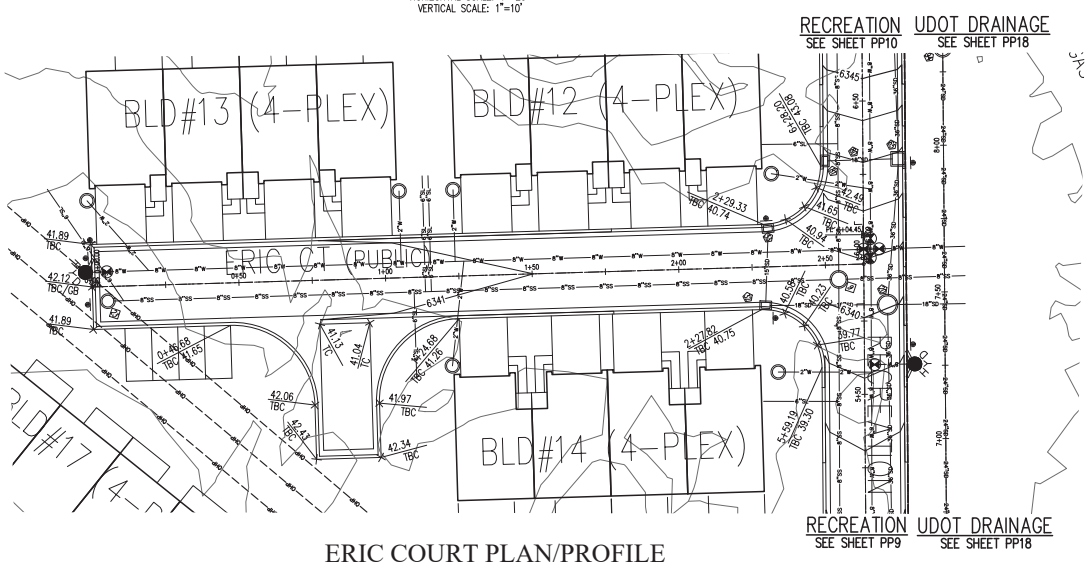
3214 NORTH UNIV. AVE, #605
PROVO, UT 84604
(801) 434-8390

EXCEL ENGINEERING
David W. Peterson, P.E., License #270393
12 West 100 North, Suite 201, American Fork, UT 84003
P: (801) 756-4504; david@excelcivil.com

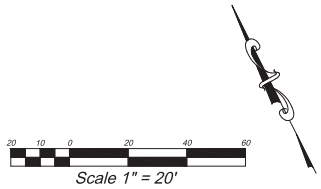
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.	BINGHAM LANE PLAN & PROFILE	Scale: 1"=20'
Designed by: G.J.Y.		Date: 09/25/25
Checked by: D.W.P.		PP7





ERIC COURT PLAN/PROFILE



VERTICAL CURVE DESIGN STANDARDS NOTE:
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HIDEOUT STANDARDS NOTE
WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

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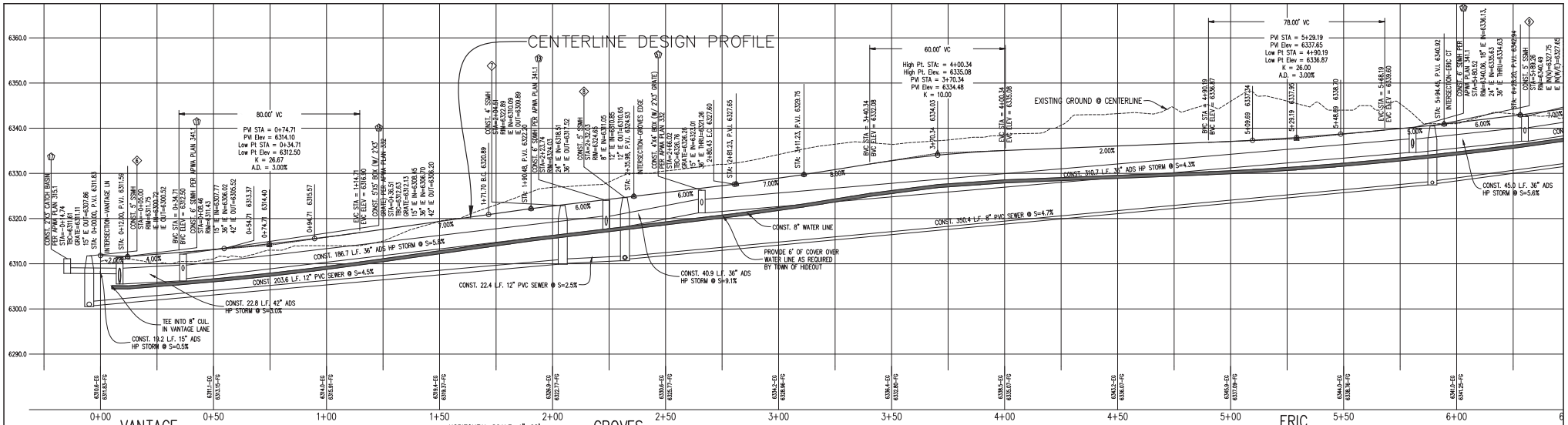
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

ERIC COURT PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP8



RECREATION DRIVE PLAN/PROFILE

STORM DRAIN KEYED NOTES

*SEE PROFILE SHEETS FOR ANY STORM DRAIN NOT CALLED OUT IN KEYED NOTES

74. CONST. 21.0 LF. 15" ADS HP STORM @ S=1.0%
75. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6312.63, GRATE=6312.13, IE OUT=6308.88
76. CONST. 23.0 LF. 15" ADS HP STORM @ S=1.0%
77. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6324.69, GRATE=6324.19, IE OUT=6320.94
78. CONST. 22.6 LF. 15" ADS HP STORM @ S=3.7%
79. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6327.78, GRATE=6327.28, IE OUT=6324.03
80. CONST. 22.0 LF. 15" ADS HP STORM @ S=2.0%
81. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6343.08, GRATE=6342.58, IE OUT=6339.33

VERTICAL CURVE DESIGN STANDARDS NOTE:

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HIDEOUT STANDARDS NOTE

WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

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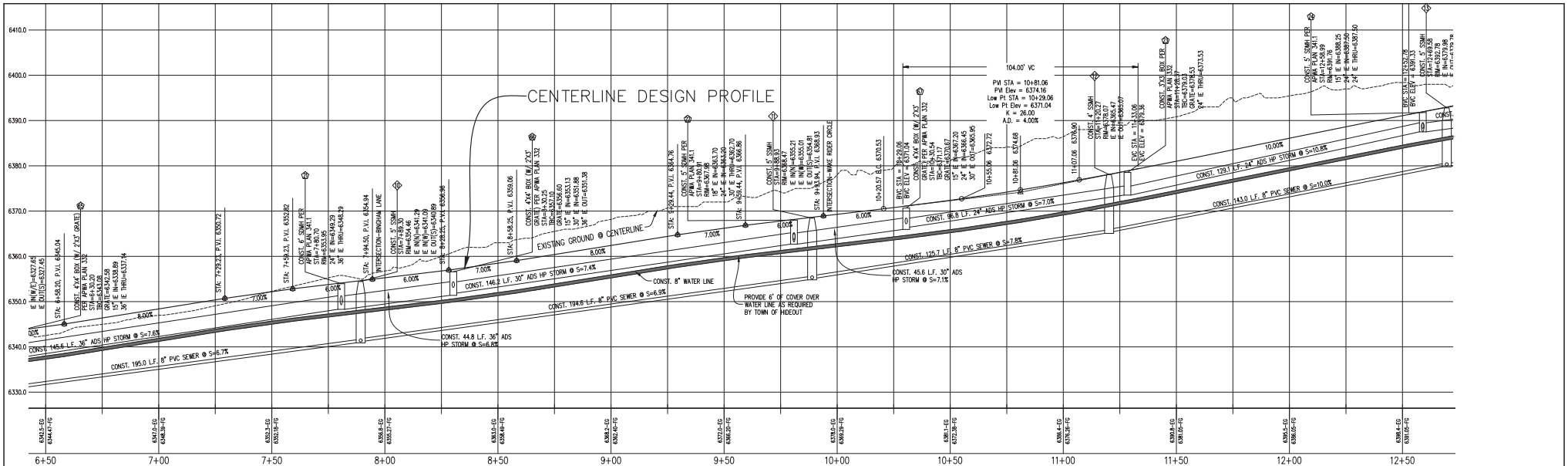
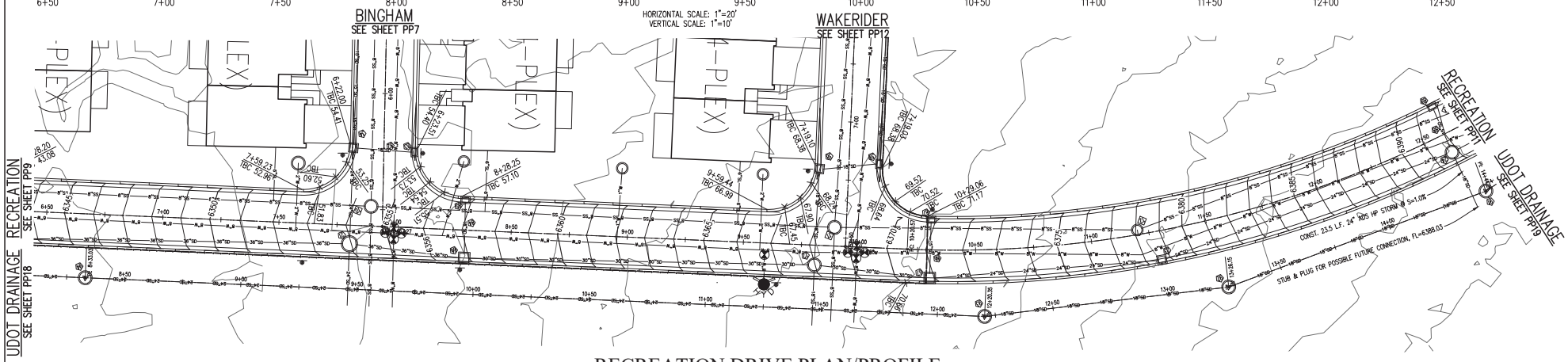
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

RECREATION DRIVE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP9





RECREATION DRIVE PLAN/PROFILE

STORM DRAIN KEYED NOTES

*SEE PROFILE SHEETS FOR ANY STORM DRAIN NOT CALLED OUT IN KEYED NOTES

82. CONST. 23.8 LF. 18" ADS HP STORM @ S=1.0%
83. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6354.40, GRATE=6353.90, IE OUT=6350.40
84. CONST. 22.0 LF. 15" ADS HP STORM @ S=1.0%
85. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6357.10, GRATE=6356.60, IE OUT=6353.35
86. CONST. 22.1 LF. 15" ADS HP STORM @ S=3.7%
87. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6371.17, GRATE=6370.67, IE OUT=6367.42
88. CONST. 18.0 LF. 15" ADS HP STORM @ S=1.0%
89. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6392.18, GRATE=6391.68, IE OUT=6388.43

VERTICAL CURVE DESIGN STANDARDS NOTE:

VERTICAL CURVES ALONG SHORELINE DRIVE & SHORELINE COURT WERE DESIGNED PER AASHTO STANDARDS FOR A 25 MPH SPEED LIMIT ROAD DESIGN. THE CREST VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-76 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS. THE SAG VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-79 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

HIDEOUT STANDARDS NOTE

WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

Scale 1" = 20'

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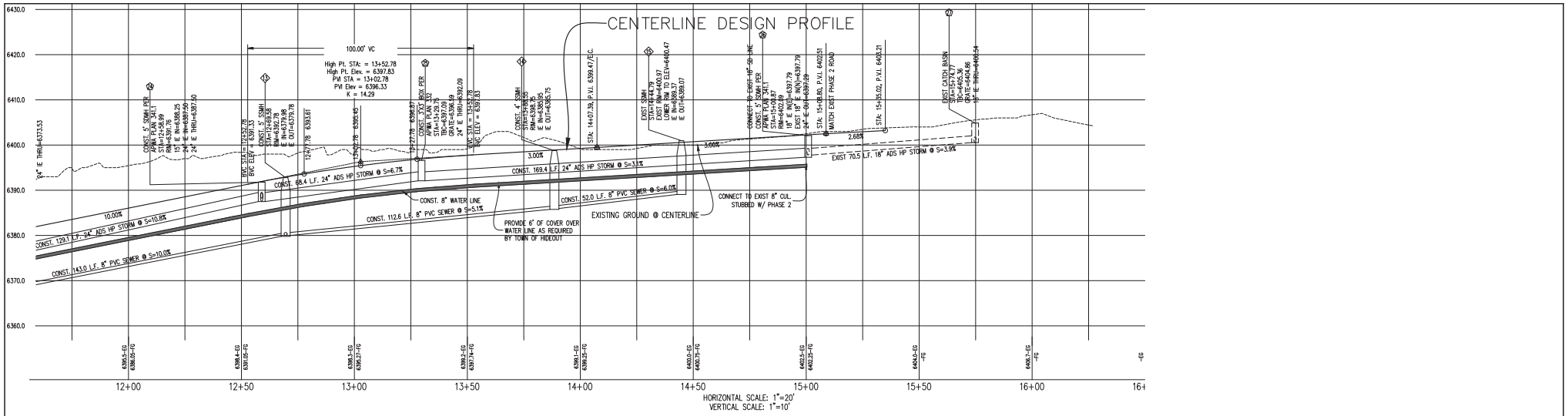
SHORELINE PHASE 4

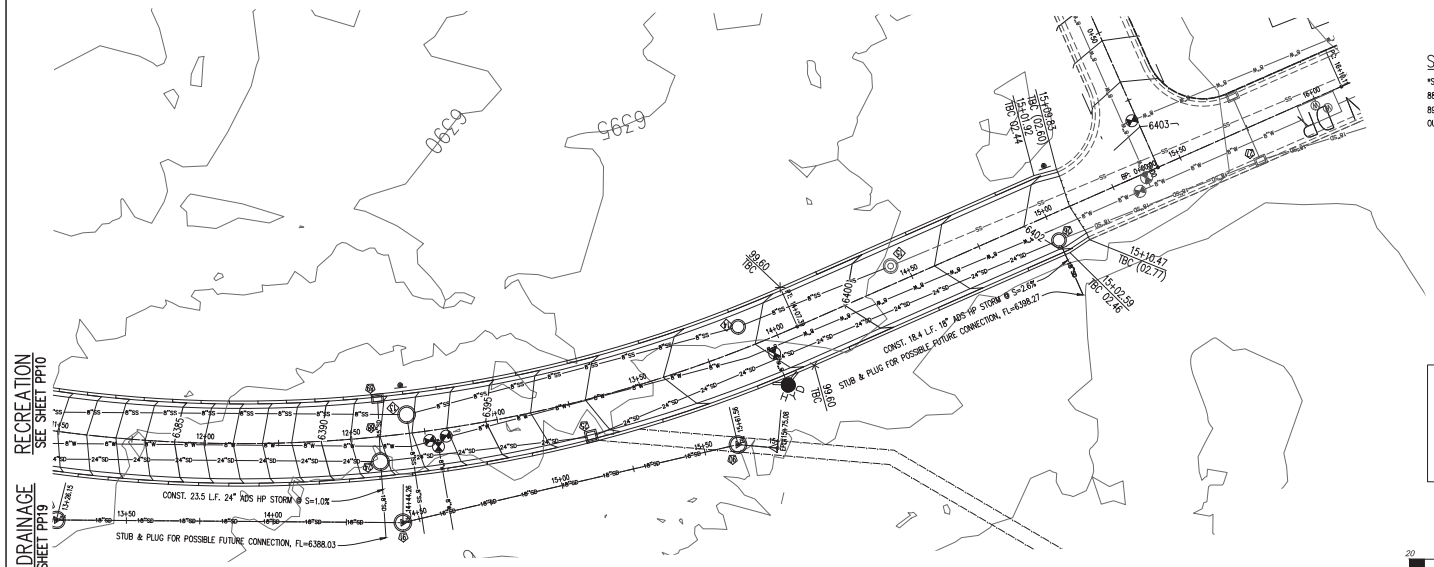
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

RECREATION DRIVE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP10





RECREATION DRIVE PLAN/PROFILE

STORM DRAIN KEYED NOTES

*SEE PROFILE SHEETS FOR ANY STORM DRAIN NOT CALLED OUT IN KEYED NOTES

88. CONST. 18.0 LF. 15" ADS HP STORM @ S=1.0%
89. CONST. 2'X3' CATCH BASIN PER APWA PLAN 315.1, TBC=6392.18, GRATE=6391.68, IE OUT=6388.43

HIDEOUT STANDARDS NOTE

WATER AND SEWER TO BE CONSTRUCTED PER JSSD STANDARDS.

VERTICAL CURVE DESIGN STANDARDS NOTE:

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20 10 0 20 40 60
Scale 1" = 20'

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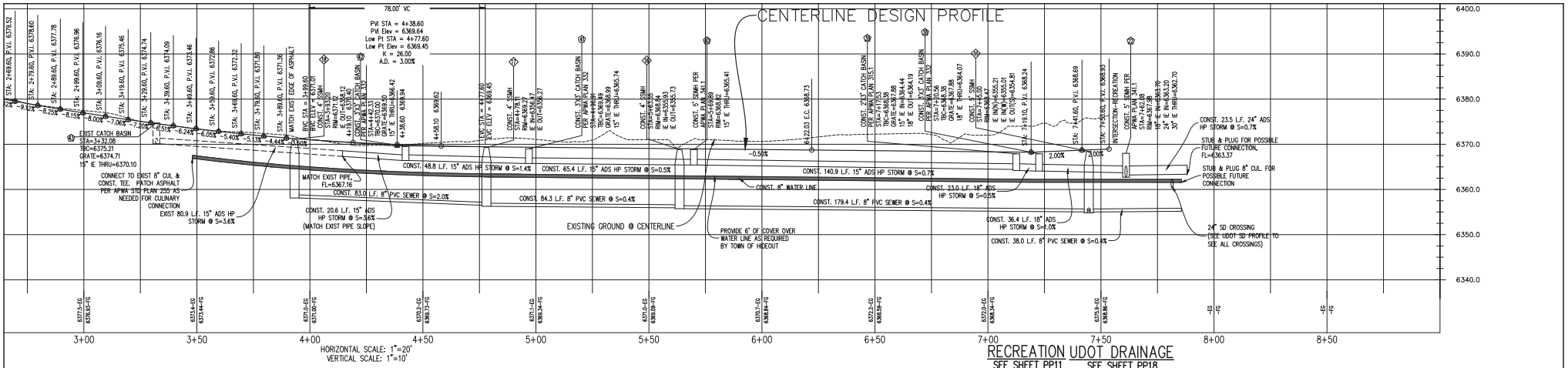
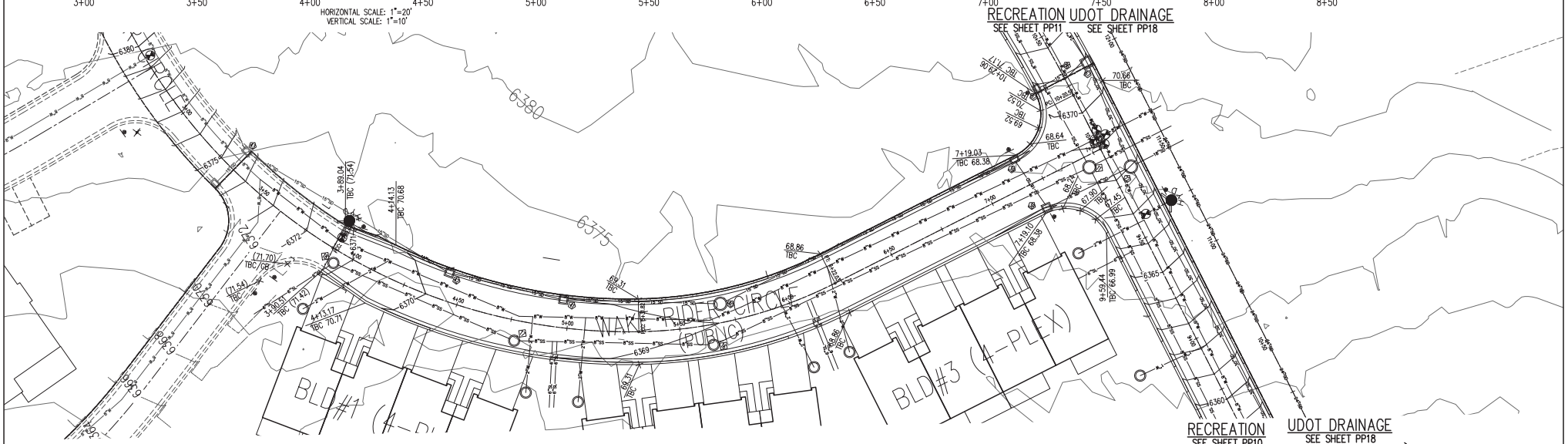
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.	RECREATION DRIVE PLAN & PROFILE	Scale: 1"=20'
Designed by: G.J.Y.		Date: 09/25/25
Checked by: D.W.P.		PP11





WAKE RIDER CIRCLE PLAN/PROFILE

Scale 1" = 20'

VERTICAL CURVE DESIGN STANDARDS NOTE:

VERTICAL CURVES ALONG SHORELINE DRIVE & SHORELINE COURT WERE DESIGNED PER AASHTO STANDARDS FOR A 25 MPH SPEED LIMIT ROAD DESIGN. THE CREST VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-76 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS. THE SAG VERTICAL CURVE DESIGN TABLE FOR K-VALUES IS FOUND IN EXHIBIT 3-79 OF AASHTO-GEOMETRIC DESIGN OF HIGHWAYS AND STREETS.

HIDEOUT STANDARDS NOTE

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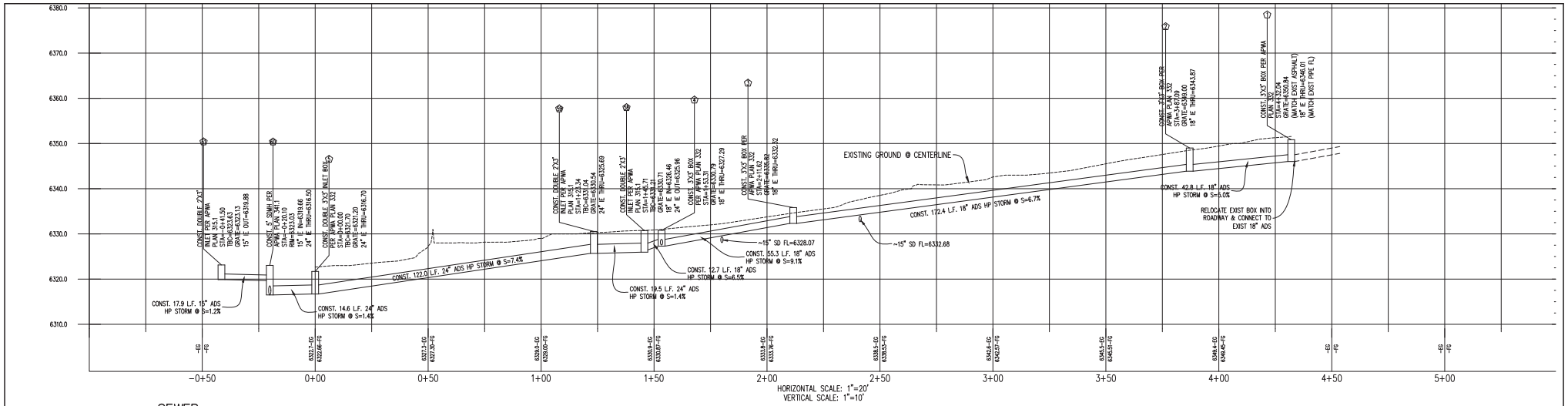
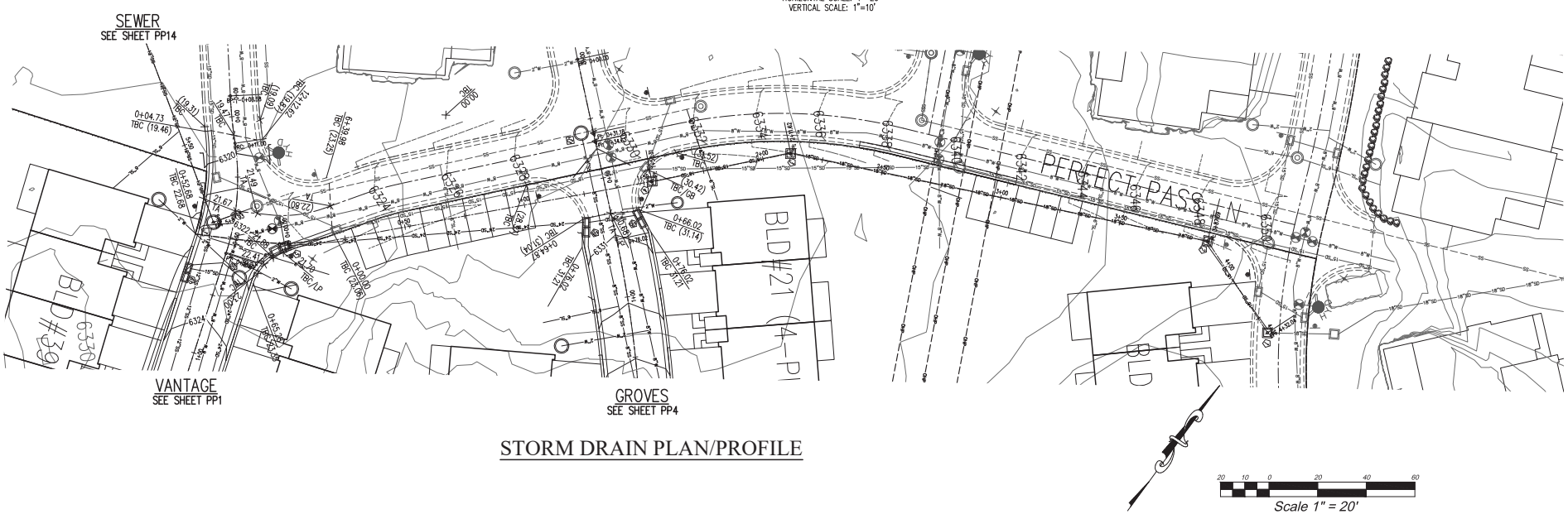
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

WAKE RIDER CIRCLE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP12





STORM DRAIN PLAN/PROFILE

Scale 1" = 20'

VERTICAL CURVE DESIGN STANDARDS NOTE:
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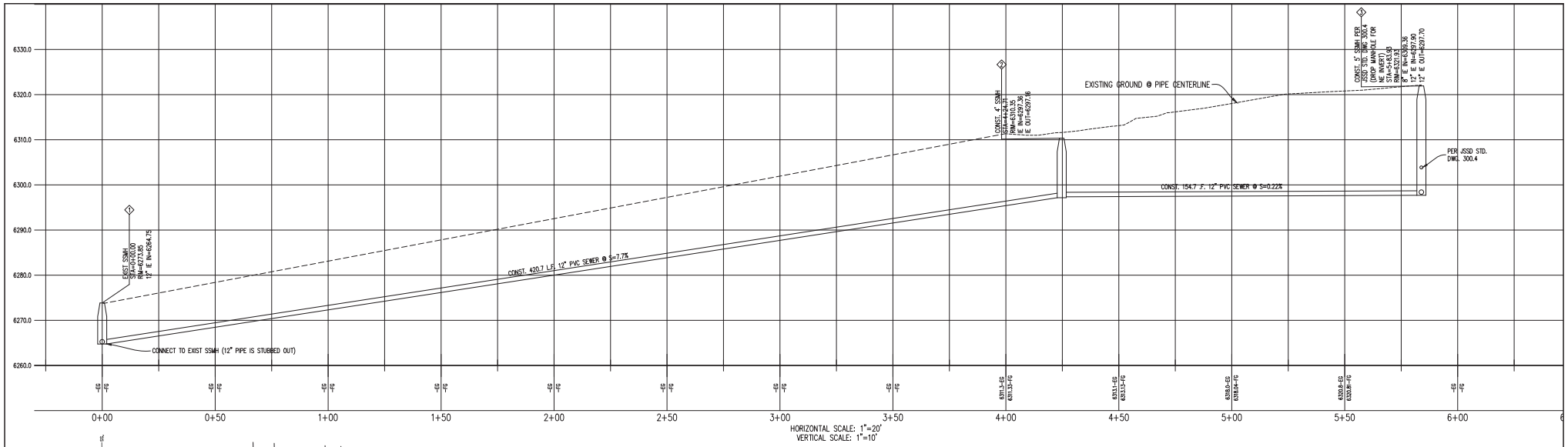
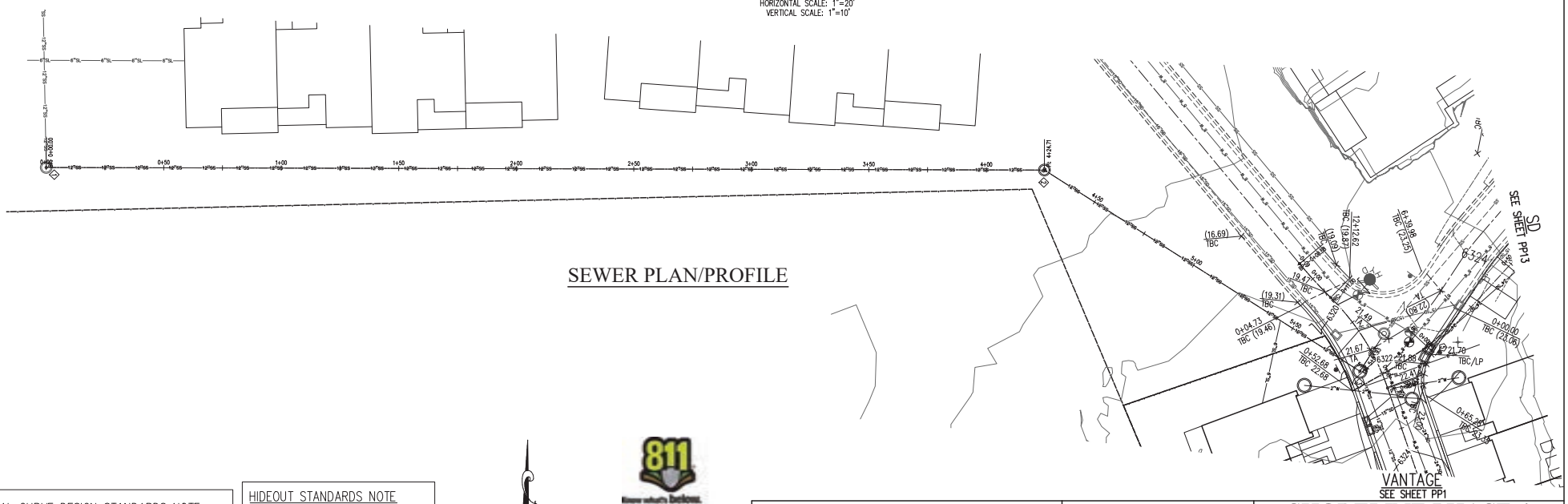
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

STORM DRAIN PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP13





SEWER PLAN/PROFILE

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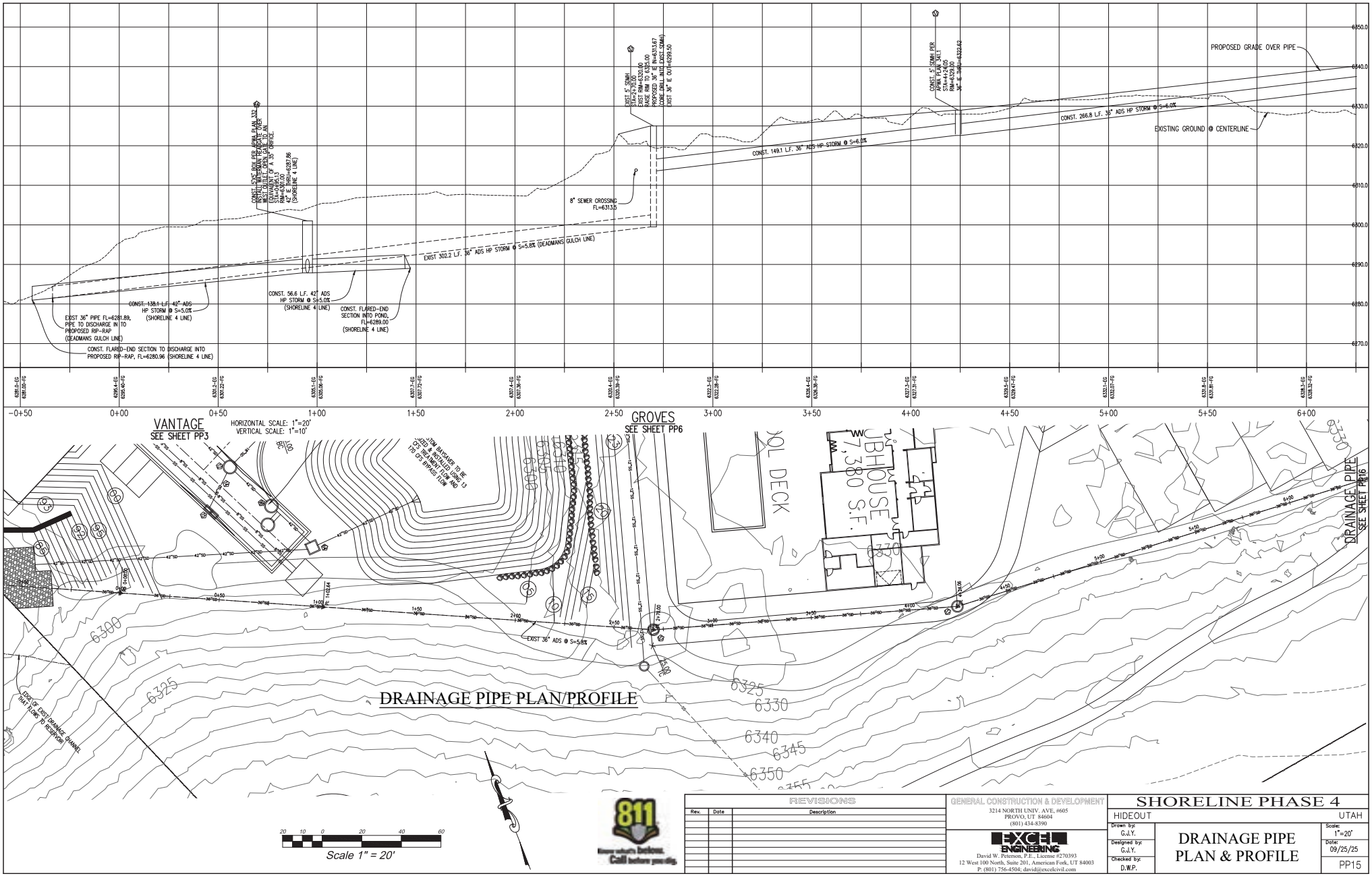
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

SEWER PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP14



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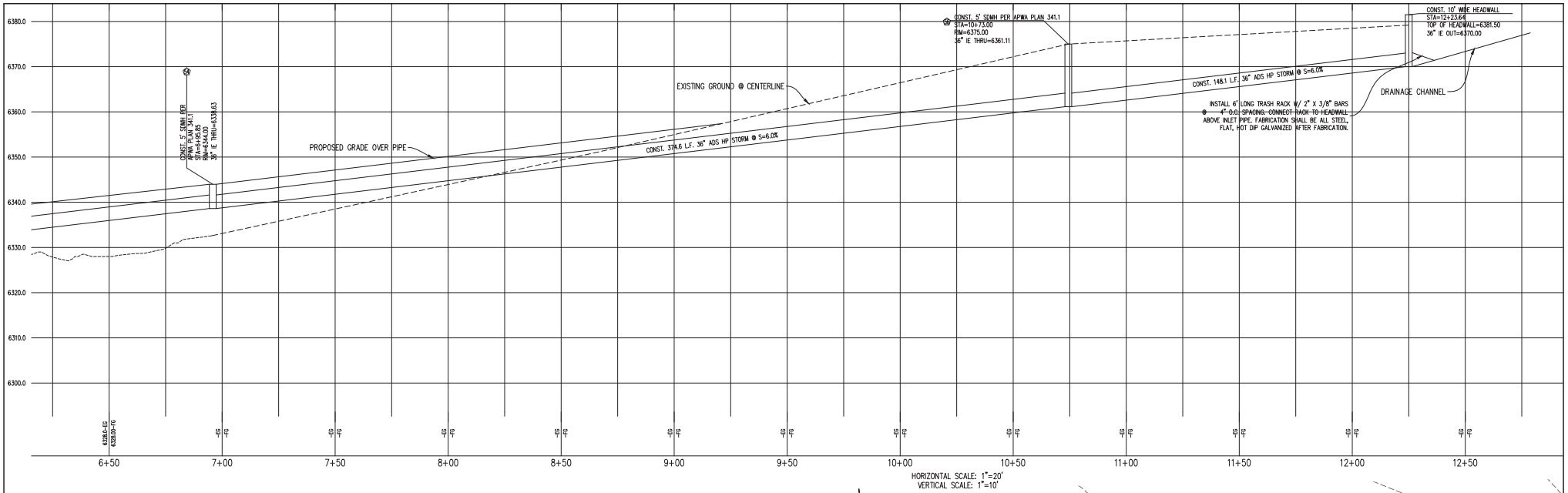
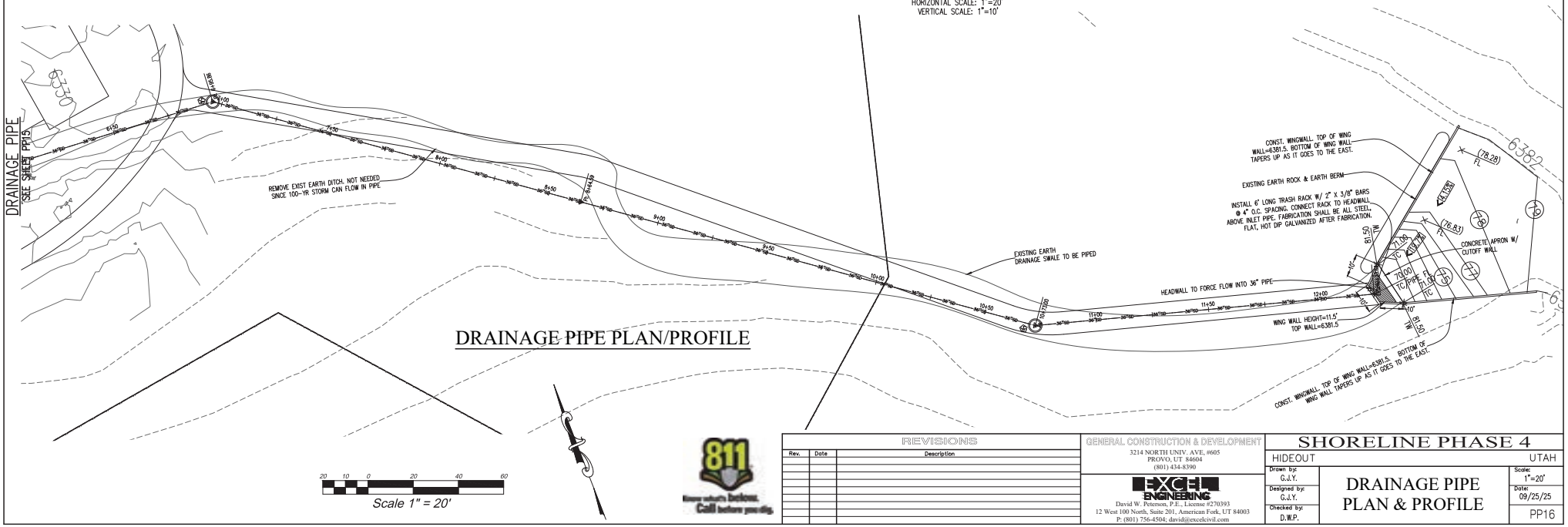
SHORELINE PHASE 4

HIDEOUT UTAH

DRAINAGE PIPE PLAN & PROFILE

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.
Scale: 1"=20'
Date: 09/25/25
PP15





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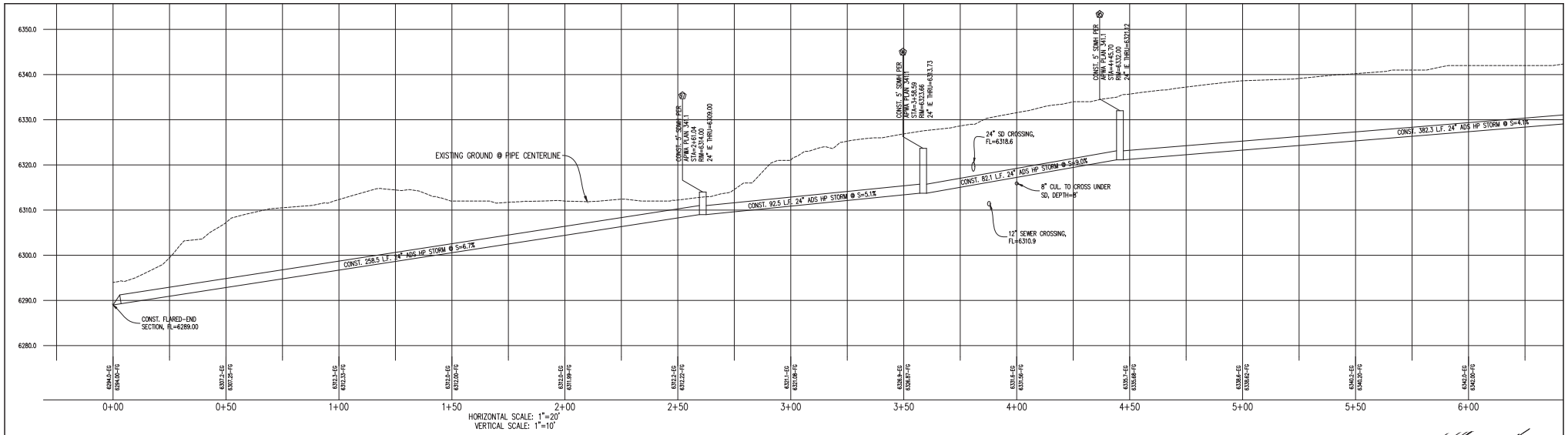
SHORELINE PHASE 4

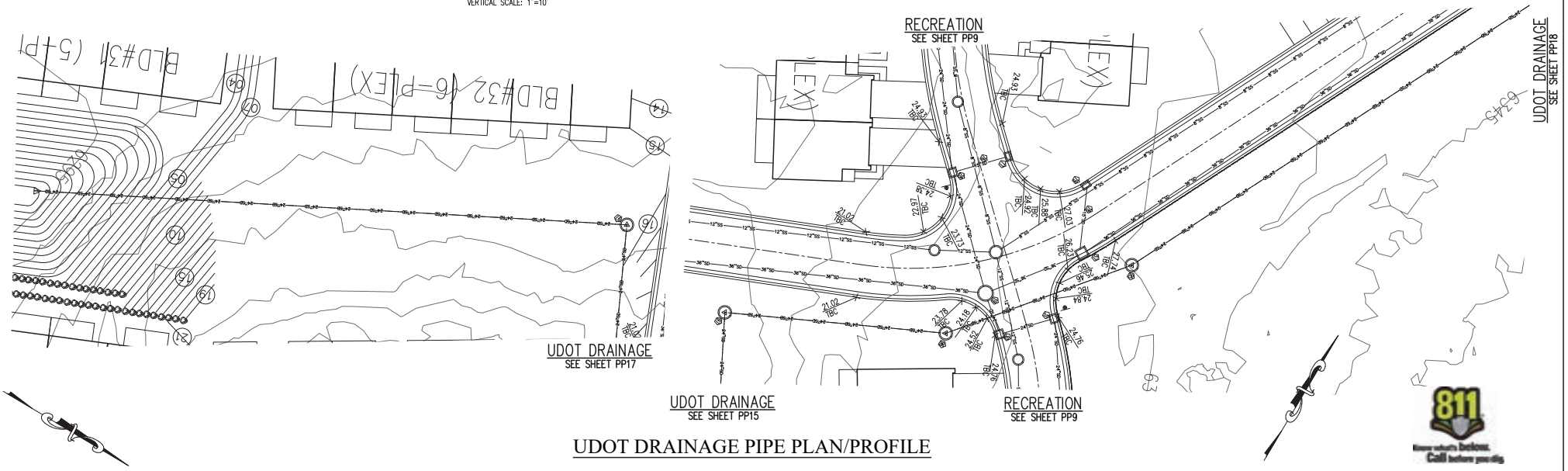
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

DRAINAGE PIPE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP16





UDOT DRAINAGE PIPE PLAN/PROFILE

20 10 0 20 40 60

Scale 1" = 20'

REVISIONS		
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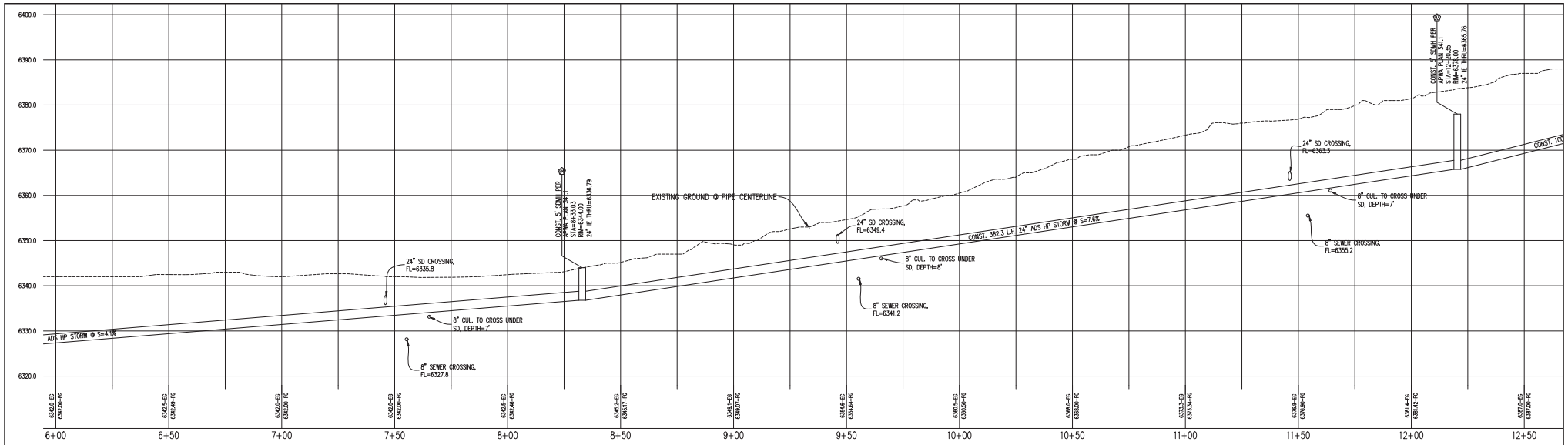
SHORELINE PHASE 4
HIDEOUT UTAH

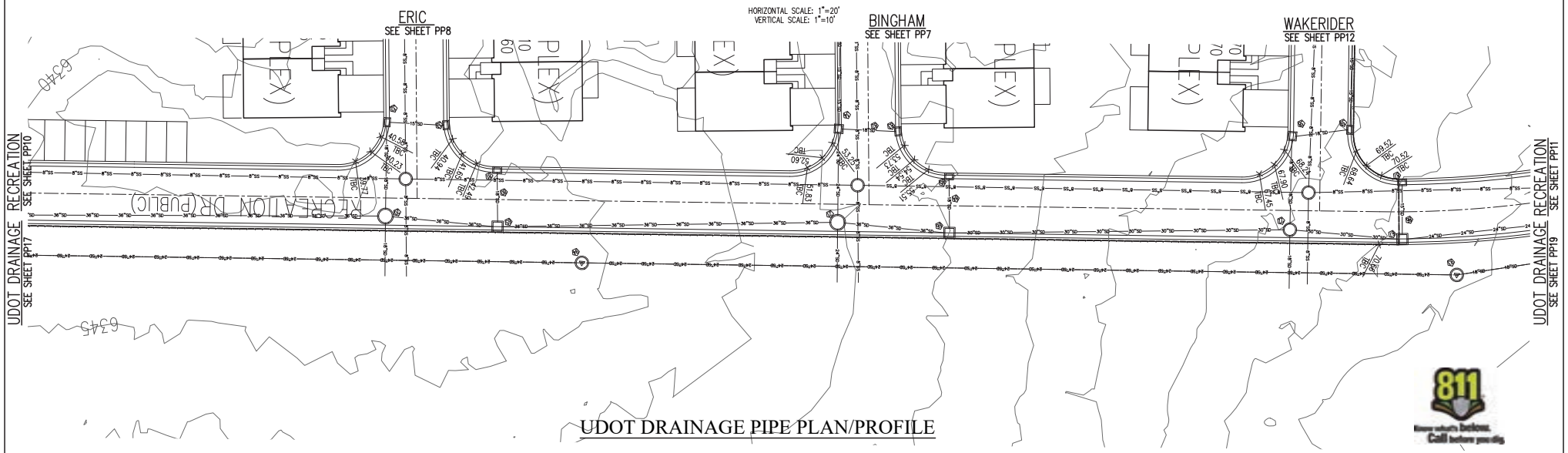
Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

UDOT DRAINAGE PIPE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP17



HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=10'



UDOT DRAINAGE PIPE PLAN/PROFILE

Scale 1" = 20'

REVISIONS		
Rev.	Date	Description

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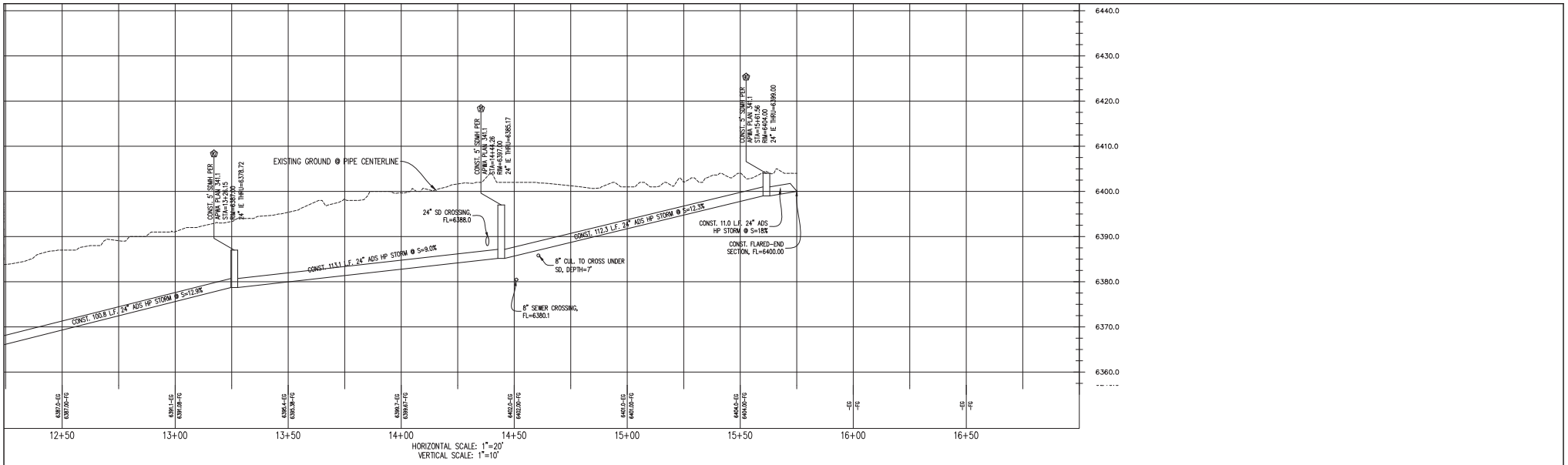
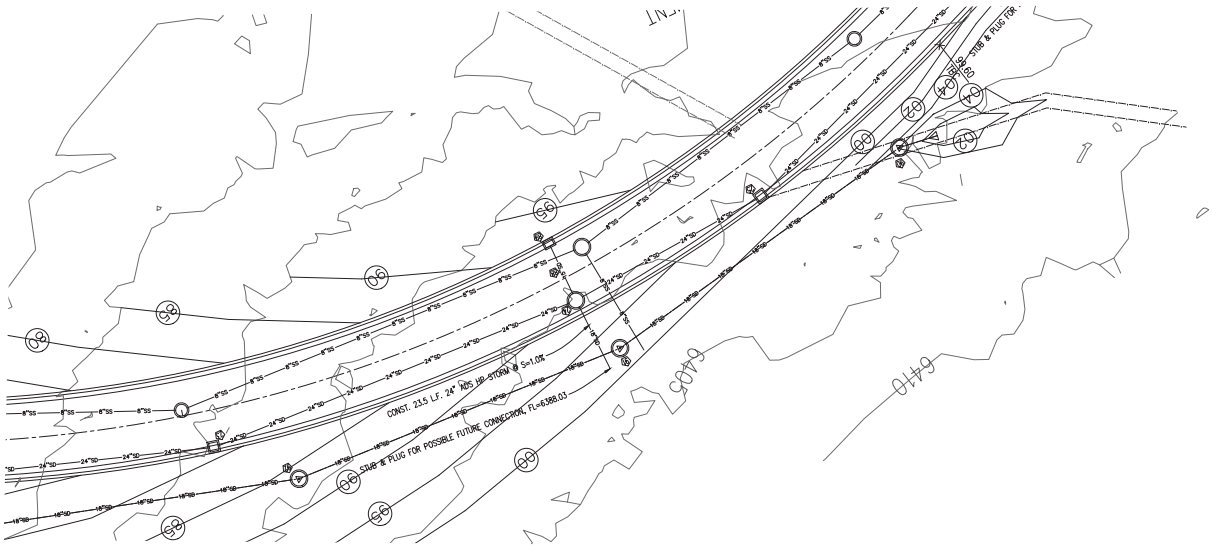
SHORELINE PHASE 4
HIDEOUT UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

UDOT DRAINAGE PIPE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP18





UDOT DRAINAGE SEE SHEET PP18

RECREATION SEE SHEET PP11

UDOT DRAINAGE PIPE PLAN/PROFILE

20 10 0 20 40 60

Scale 1" = 20'

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SHORELINE PHASE 4

HIDEOUT UTAH

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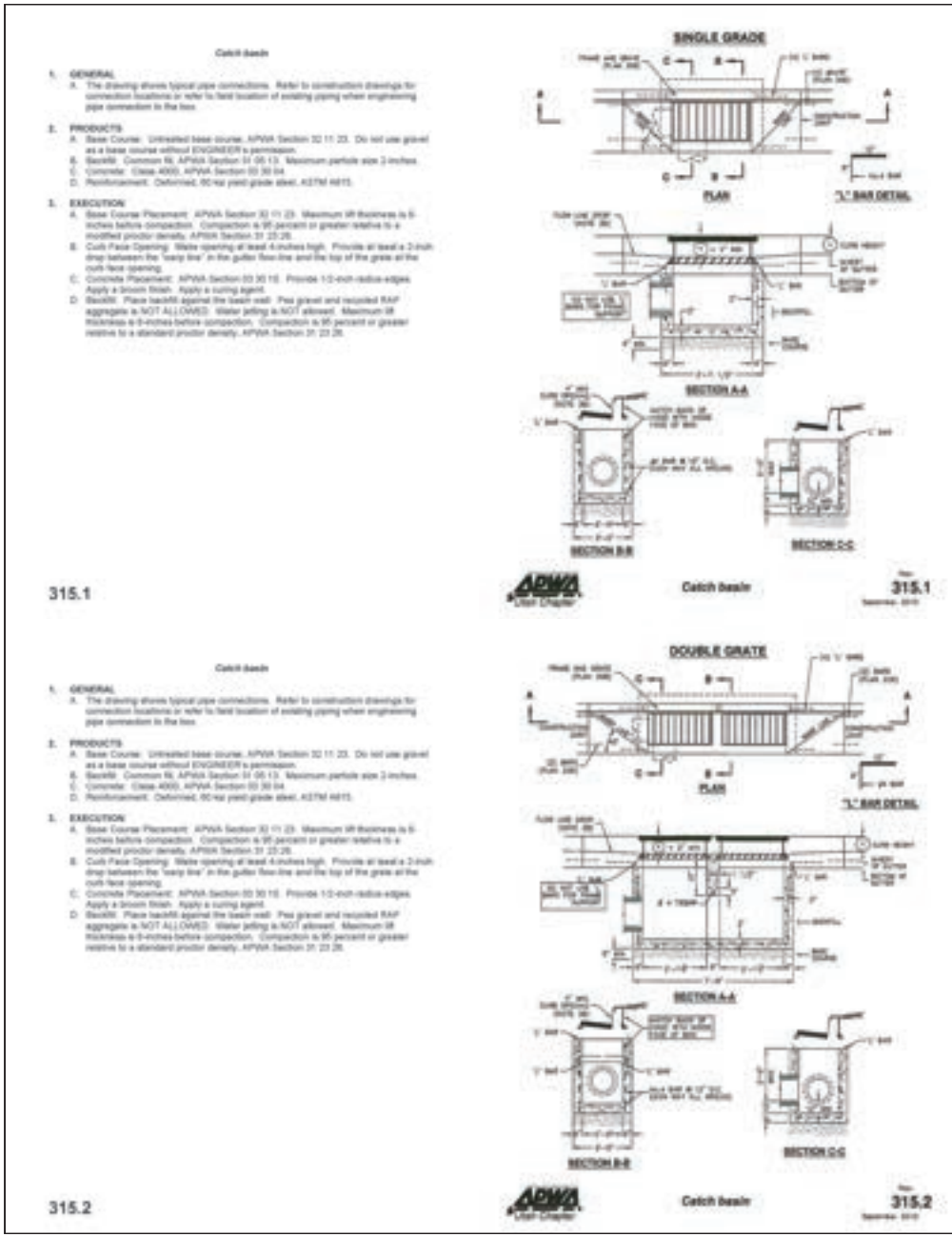
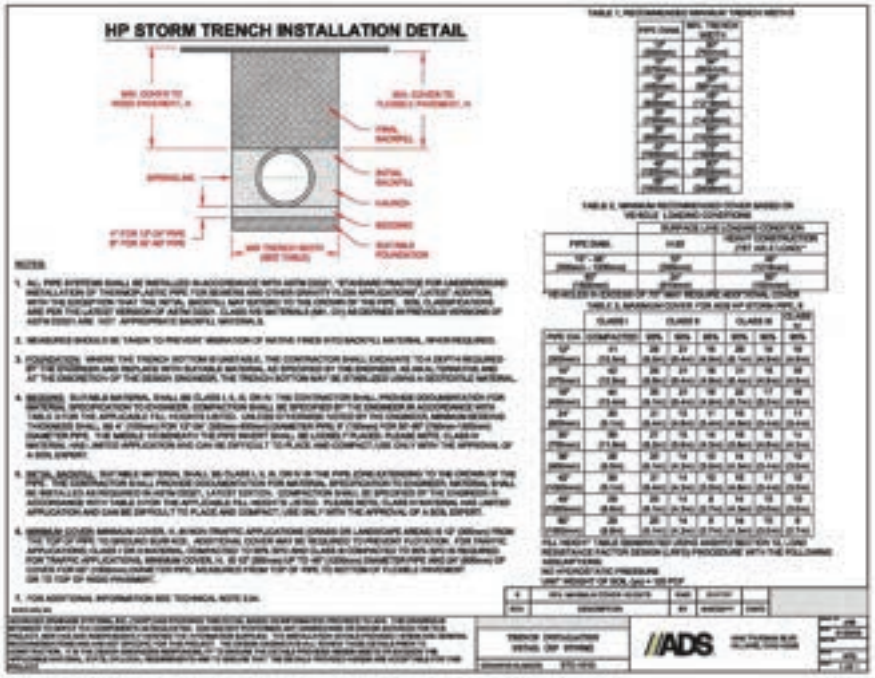
Designed by: G.J.Y.
Checked by: D.W.P.

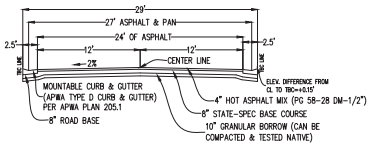
UDOT DRAINAGE PIPE PLAN & PROFILE

Scale: 1"=20'
Date: 09/25/25
PP19



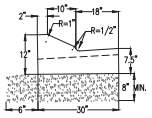


*SEE TOWN OF HIDEOUT STANDARD DRAWINGS AND APWA MANUAL OF STANDARD PLANS FOR CONSTRUCTION DETAILS



29' ROAD CROSS SECTION – PUBLIC STREET

SCALE: NTS



MOUNTABLE CURB & GUTTER

SCALE: NTS

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REVISIONS

Rev.	Date	Description
1	04/22/25	CLOUDED ITEMS WERE REVISED PER CITY COMMENTS

SHORELINE PHASE 4

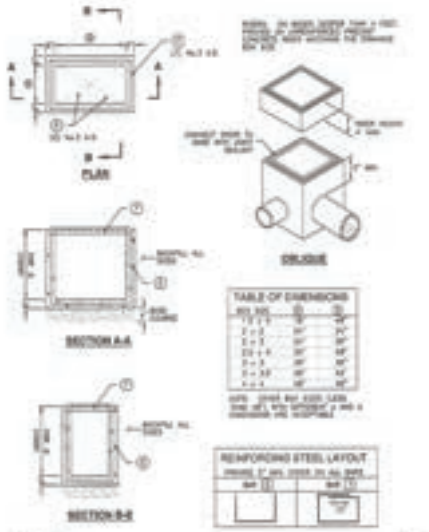
HIDEOUT UTAH

Drawn by: G.J.Y.	DETAIL SHEET	Scale: NTS
Designed by: G.J.Y.		Date: 09/25/25
Checked by: D.W.P.		D1

Precast box

1. GENERAL
   A. The drawing shows typical pipe connections. Refer to construction drawings for connection locations or refer to field location of existing piping when engineering pipe connection to the box.
   B. This drawing is acceptable where the water table elevation is less than 3 feet above the floor of the box. If elevation of water table is higher, engineering calculations and drawings must be submitted to and approved by the ENGINEER.
   C. Submit bar design detail for ENGINEER's review.
2. PRODUCTS
   A. Base Course: Untreated base course, APWA Section 32 11 23. Do not use gravel as a base course without ENGINEER's permission.
   B. Backfill: Common fill, APWA Section 31 05 13. Maximum particle size 3 inches.
   C. Precast Concrete: Class 4000 precast, APWA Section 03 40 00.
   D. Reinforcement: Deformed, 60 ksi yield grade steel, ASTM A615. Coated steel is not required for small drainage structures shown on this drawing.
   E. Frame and Cover (or Grate): Use the appropriate unit indicated in the Contract Documents.
   F. Joint Sealant: Rubber-based, compressible.
3. EXECUTION
   A. Concrete Placement: Provide 2 inches of concrete cover over reinforcing steel.
   B. Lifting Points: Provide at least 2 lifting points per section that avoid interference with the reinforcing steel and that are designed according to PCI (Prestressed Concrete Institute) design handbook. Lift only from the engineered lifting points.
   C. Depth: Drainage boxes and riser combinations that exceed 6 feet from finished grade to the bottom of the box requires ENGINEER's approval. Submit design calculations and shop drawings.
   D. Core Holes:
      1) Provide core holes that are at least 4" larger than attaching outer pipe diameter. Cut core holes at the manufacturing plant unless ENGINEER permits field core holes.
      2) Center core holes to leave 2" of concrete measured horizontally from inside wall of the box to core hole. Locate core hole vertically so bottom of core hole will be at or above floor elevation with at least 5 inches of concrete directly above the core hole to the top of the box.
      3) Deviations from core hole tolerances require shop drawings. Shop drawings will identify lifting point number and location.
   E. Precast Top: Design precast top for AASHTO HL-93 live loads and submit rebar detail and stamped design drawings to ENGINEER. Show connection detail for frame and grate or cover.

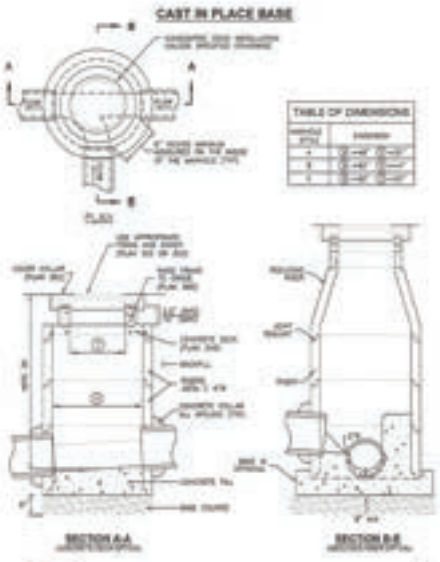
*SEE 331.2 & 331.3 FOR LID & FRAME SPECS FOR 332 BOXES



332 — APWA Utah Chapter — Precast box — Rev. 332

Precast manhole

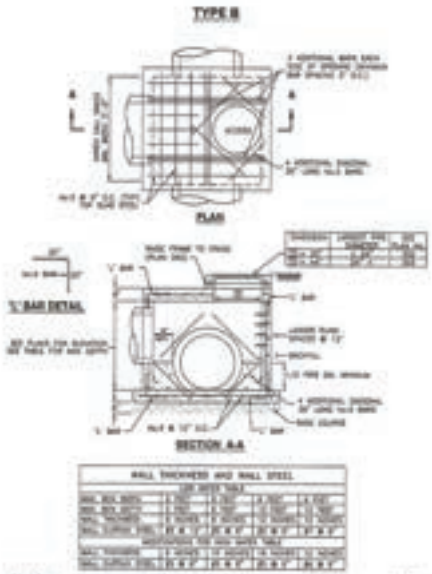
1. GENERAL
   A. The drawing shows typical pipe connections. Refer to construction drawings for connection locations or refer to field location of existing piping when engineering pipe connection to the manhole.
   B. Manhole size:
      1) Diameter is 4-feet: For pipe under 12" diameter.
      2) Diameter is 5-feet: For pipe 12" and larger, or when 3 or more drain pipes intersect the manhole.
   C. Wall thickness:
      1) Precast reinforced concrete walls 4 3/4" minimum.
      2) Cast-in-place concrete to be 6 inches thick minimum.
2. PRODUCTS
   A. Base Course: Untreated base course, APWA Section 32 11 23. Do not use gravel as a base course without ENGINEER's permission.
   B. Backfill: Common fill, APWA Section 31 05 13. Maximum particle size 3 inches.
   C. Concrete: Class 4000, APWA Section 03 30 04.
   D. Riser and Reducing Riser: ASTM C478.
   E. Joint Sealant: Rubber based, compressible.
   F. Grout: 2 parts sand to 1 part cement mortar, ASTM C1107.
   G. Backfill Separation Geotextile: Moderate or high at CONTRACTOR's choice, APWA Section 31 05 19.
3. EXECUTION
   A. Foundation Stabilization: Get ENGINEER's permission to use a sewer rock or a sewer rock in a geotextile wrap to stabilize an unstable foundation.
   B. Base Course Placement: APWA Section 32 11 23. Maximum lift thickness is 6-inches before compaction. Compaction is 95 percent or greater relative to a modified proctor density, APWA Section 31 23 26.
   C. Invert cover: During construction, place invert covers over the top of pipe in manholes that currently convey sewerage. See Plan #12.
   D. Concrete Deck or Reducing Riser: When depth of manhole from pipe invert to finish grade exceeds 7 feet, use an ASTM C478 reducing riser.
   E. Pipe Connections: Grout around all pipe openings.
   F. Pipe Seal: Install rubber-based pipe seals on all plastic pipes when connecting plastic pipes to manholes. Hold water-stop in place with stainless steel bands.
   G. Joints: Place flexible sealant in all riser joints. Finish with grout.
   H. Adjustment: If the required manhole adjustment is more than 1'-0", remove the cone and grade rings and adjust the manhole elevation with the appropriate manhole section, the cone section, and the grade rings or plastic form to make frame and lid match finish grade.
   I. Finish: Provide smooth and neat finishes on interior of cones, shafts, and rings. Imperfect moldings or honeycombs will not be accepted.
   J. Backfill: Provide backfill against the manhole shaft. Pea gravel and recycled RAP aggregate is NOT ALLOWED. Water jetting is NOT allowed. Maximum lift thickness is 6-inches before compaction. Compaction is 95 percent or greater relative to a standard proctor density, APWA Section 31 23 26.



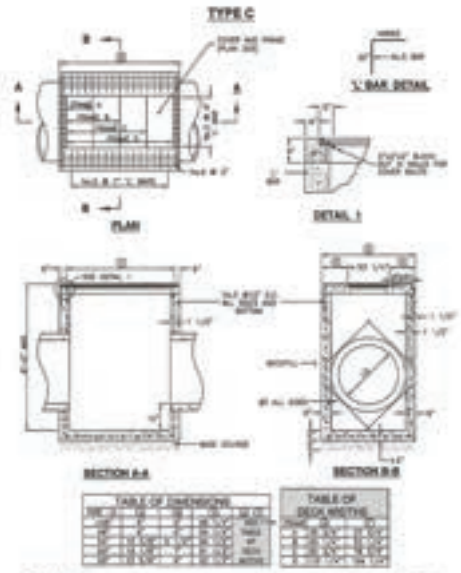
341.1 — APWA Utah Chapter — Precast manhole — Rev. 341.1

Cleanout box

1. GENERAL
   A. The drawing shows typical pipe connections. Refer to construction drawings for connection locations or refer to field location of existing piping when engineering pipe connection to the box.
2. PRODUCTS
   A. Base Course: Untreated base course, APWA Section 32 11 23. Do not use gravel as a base course without ENGINEER's permission.
   B. Backfill: Common fill, APWA Section 31 05 13. Maximum particle size 3 inches.
   C. Concrete: Class 4000, APWA Section 03 30 04.
   D. Reinforcement: Deformed, 60 ksi yield grade steel, ASTM A615.
   E. Stabilization Separation Geotextile: High MARV, woven or non-woven, APWA Section 31 05 19.
   F. Ladder Rungs: Plastic, or plastic coated steel typically 8-inches wide.
3. EXECUTION
   A. Foundation Stabilization: Get ENGINEER's permission to use a sewer rock or a sewer rock in a geotextile wrap to stabilize an unstable foundation.
   B. Base Course Placement: APWA Section 32 11 23. Maximum lift thickness is 6-inches before compaction. Compaction is 95 percent or greater relative to a modified proctor density, APWA Section 31 23 26.
   C. Reinforcement: Center steel in walls and slabs with a minimum cover of 2 inches. Keep steel 2 inches clear around pipe and lid opening. Tie-bars required at all corners, vertical and horizontal. Tie-bars connecting two walls must match wall bar size and spacing. Tie-bars connecting walls to top and bottom slabs must match slab steel size and spacing.
   D. Concrete Placement: APWA Section 03 30 10. Adjust concrete dimensions at frame accordingly. Provide 1/2-inch radius edges. Apply a broom finish. Apply a curing agent.
   E. Access: Eccentric access is shown. Before construction, verify if concentric access is required. Adjust reinforcement accordingly.
   F. Ladder Rungs: Required in boxes greater than 6 feet deep with eccentric access. Align rungs with location of access-opening. Rungs not required in boxes with concentric access.
   G. Backfill: Provide backfill against all of the box walls. Pea gravel and recycled RAP aggregate is NOT ALLOWED. Water jetting is NOT allowed. Maximum lift thickness is 6-inches before compaction. Compaction is 95 percent or greater relative to a standard proctor density, APWA Section 31 23 26.



331.2 — APWA Utah Chapter — Cleanout box — Rev. 331.2



331.3 — APWA Utah Chapter — Cleanout box — Rev. 331.3

811 Know what's below. Call before you dig.

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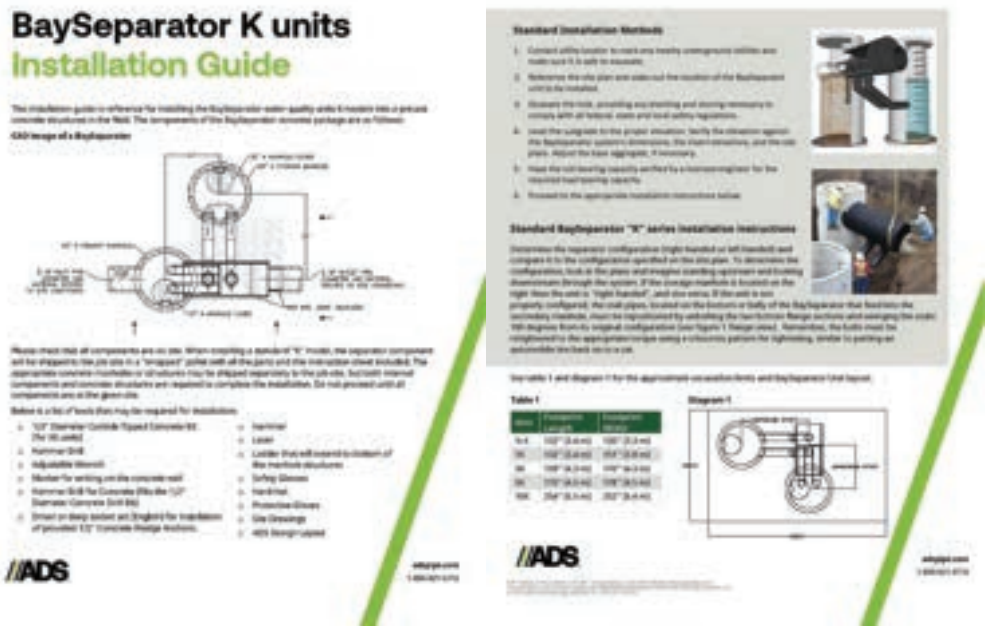
REVISIONS

Rev.	Date	Description

SHORELINE PHASE 4

HIDEOUT UTAH

Drawn by: G.J.Y.	DETAIL SHEET	Scale: NTS
Designed by: G.J.Y.		Date: 09/25/25
Checked by: D.W.P.		D2



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REVISIONS

Rev.	Date	Description

SHORELINE PHASE 4

HIDEOUT UTAH

Drawn by: G.J.Y.	DETAIL SHEET	Scale: NTS
Designed by: G.J.Y.		Date: 09/25/25
Checked by: D.W.P.		D3

Shoreline Ph. 4
Hideout, Utah

STORM DRAIN REPORT

September 23, 2025

09/23/2025

Prepared By:

ENGINEERS
SURVEYORS
PLANNERS

3302 N Main Street
Spanish Fork, UT 84660
(801) 798-0555

This report for the drainage design of Shoreline Ph. 4 was prepared under my direct supervision in accordance with the J provisions of the storm drainage design and technical criteria and was designed to comply with the provisions thereof. I understand that Hideout does not and will not assume liability for drainage facilities design.

Registered Professional Engineer
State of Utah No. 189844

Introduction

This report provides the storm drain analysis and design for Shoreline Phase 4, a residential development located in Hideout, Utah. The Shoreline project is being constructed in multiple phases, with each phase carefully planned to integrate into the overall stormwater management system.

Phase 4 serves a critical role in the development's drainage network, as it will receive and convey runoff from both Phase 1 and Phase 3 in addition to handling its own on-site flows. The system is also being designed with capacity to accommodate future phases of Shoreline, ensuring long-term functionality and compliance with local stormwater requirements. By contrast, Phase 2 was constructed as a standalone system and does not contribute to the Phase 4 network.

The purpose of this report is to document the hydrologic and hydraulic analysis for Shoreline Phase 4, confirm that the proposed storm drain improvements are adequately sized to manage existing and future contributing areas, and demonstrate compliance with the Town of Hideout's design criteria.

The structure of this report is based on the City of Hideout Title 11 code from 2010.

General Location and Description

1. General Location and Description.

a. Location

Shoreline PH. 4 is located within the city of Hideout, Utah. See Mapping section for additional information.

b. Information as required for Preliminary Plans.

a. City, County, State Highway and local streets within and adjacent to the site, or the area to be served by the drainage improvements.

Hideout City is located within the county of Wasatch County Utah. The site is located to the southeast of Utah State Route 248. The site will additionally add onto the existing Recreation Drive installed within the previous phases of the Shoreline development.

b. Township, range, section, 1/4 section, (subdivision, lot and block).

SE Corner, Section 17, Township 2 South, Range 5 East, Salt Lake Base and Meridian

c. Major drainage ways and facilities.

There are two culverts that drain onto the site from the UDOT Utah State Route 248 drainage system. Refer to Appendix A for a detailed analysis of these culverts. These analyses have been completed by others within their separate developments.

d. Names of surrounding developments.

Shoreline Ph. 4 is surrounded by the previous phases of Shoreline.

e. Name of receiving water(s).

The water being discharged from Phase 4 will go into an existing drainage channel that eventually discharges into Jordanelle Reservoir.

c. Local streets within the adjacent to the subdivision.

Several streets within and adjacent to the subdivision are the following: Recreation Drive, Deepwater Drive, Wake Rider Circle, Utah State Road 248, and Shoreline Drive. Refer to Mapping section for more details.

d. Easements within and adjacent to the site.

See Civil Plans done by Excel for details.

2. Description of Property

a. Information as required for Preliminary Plans.

f. Existing ground cover (type and vegetation).

Using the USDA soil survey, the hydraulic soil group is mainly type C. However future portions of the Shoreline development have type D soils. The site is vegetation with scrub oak and other similar ground covers. Refer to Appendix B for details.

g. Area in acres.

The acres of the Shoreline Ph. 4 site is 89.30 acres. The area of the total drainage tributary area is 124.30 acres. Refer to Appendix C for a map of the Shoreline Ph. 4 site. Refer to appendix D for a detailed map on the tributary area.

h. Existing major irrigation facilities such as ditches and canals.

There are no irrigation facilities located on site that need to be discussed within this drainage report.

i. Proposed land use and ground cover.

The land use for Shoreline Ph. 4 will be high density residential units. The ground cover within any open space will consist of the following types:

- *Native areas that will not be disturbed.*
- *Amended areas where native plants will be replanted.*
- *Irrigated areas that will be landscaped.*

The future Shoreline development will be a mix of high density and low-density residential units.

b. General project description.

Shoreline Ph. 4 is a high-density residential site that will include several amenities including parks, landscaped areas, and a clubhouse. The site slopes to the southwest to an existing drainage channel that discharges into Jordanelle reservoir.

c. Area in acres.

The acres of the Shoreline Ph. 4 site is 89.30 acres. The area of the total drainage tributary area is 124.30 acres. Refer to Appendix C for a map of the Shoreline Ph. 4 site. Refer to appendix D for a detailed map on the tributary area.

d. General soil conditions, topography, and slope.

Using the USDA soil survey, the hydraulic soil group is mainly type C. However future portions of the Shoreline development have type D soils. The site is vegetation with scrub oak and other similar ground covers. From the USDA soil survey, the site has a range of 6% to 65% slopes which slopes to the southwest of the project. This includes the future Shoreline development and existing phases. Refer to Appendix B for a map of soil types and general slopes.

e. Irrigation facilities.

There is no irrigation facilities located on site that need to be discussed within this drainage report.

Drainage Basins and Sub-basins

1. Major Basin Description

a. Information as required for Preliminary Plans.

a. Reference to major drainage way planning studies such as flood hazard delineation report, major drainage way planning reports, and flood insurance rate maps.

Refer to Mapping section below.

b. Major basin drainage characteristics, and existing and planned land uses within the basin, as defined by the planning commission.

This is the fourth phase of the Shoreline Development under the Shoreline MDA. Phase 4 will be the lowest phase within the development and will route previous phase 1 and 3 to a central discharge point. This phase will also take into account the future phases of the Shoreline development and will route that runoff to the same central discharge point located within Phase 4. Refer to Appendix E for the Shoreline MDA.

c. Identification of all nearby irrigation facilities that will influence or be influenced by the local drainage.

There is no irrigation facilities located on site that need to be discussed within this drainage report.

b. Identification of all irrigation facilities within the basin that will influence or be influenced by proposed site drainage.

There is no irrigation facilities located on site that need to be discussed within this drainage report.

c. Sub-Basin Description

Within the Shoreline Ph. 4 area, there are three different types of sub-basins used to model the storm drain runoff:

- *Uphill lots include the area from the centerline of the roadway, through the open space behind the lots on the uphill side of the road and the back half of the lots above the open space.*
- *Downhill lots include the area from the centerline of the roadway to the middle of the lots on the downhill side of the roadway.*
- *Roadway areas include the area from the centerline of the roadway to 5-10 feet behind the ROW.*

Each of these areas will have their own CN value and time of concentration. Refer to Appendix F for CN and ToC calculations.

d. Information as required for Preliminary Plans.

a. Describe historic drainage patterns of the property.

The drainage follows the natural contours of the site to a central discharge point located on the southwest edge of the property. This flow will be analyzed and the historic discharge at that point will be used as a discharge from the proposed detention pond located near to the central discharge point.

b. Describe offsite drainage flow patterns and impact on development under existing and fully developed basin conditions.

There are two culverts that convey drainage across Utah State Road 248 and from upstream developments to this site. These culverts followed existing channels to the ultimate discharge point in the southwest of the project. During development, these flows will be captured within separate pipe systems and will bypass or pass-through the proposed Shoreline improvements.

Drainage Facility Design Criteria

1. Previous Studies and Specific Site Constraints

a. Previous drainage studies (i.e., project master plans) for the site that influence or are influenced by the drainage design and how implementation of the plan will affect drainage and storm water quality for the site.

Refer to Appendix G for previous studies for PH. 1, PH. 3, and Offsite Flow Reports.

b. Potential impacts identified from adjacent drainage studies.

The runoff from the culvert to the East of the project is proposed to be piped through the middle of the site. This pipe will convey the full flow to the proposed detention basin. The proposed orifice plate will be sized to allow this flow to discharge and pass-through the storm drain system. The southern culvert will bypass the system entirely.

c. Drainage impacts of site constraints such as streets, utilities, transit ways, existing structures, and development or site plan.

Flow from previous phases will be accounted for within this phase. Phase 2 will stand alone in the north, but phase 1 and phase 3 will be routed into this system to the ultimate discharge point mentioned above. Additionally, all flows from future development will be taken into account for this storm drain system.

2. Hydrologic Criteria

a. Design storm rainfall and its return period(s).

Using NOAA Atlas 14, storm intervals and precipitation frequencies were acquired for the 2-year, 10-year, and 100-year storm periods. See Appendix H for the NOAA Atlas Precipitation Frequencies used within this analysis.

b. Runoff calculation method(s).

The storm drain runoff for the development was modeled using Autodesk Sanitary and Storm Sewer Analysis software (SSA). This model was run using the TR-55 methodology to determine runoff rates. Models have been created for both pre and post development flows and these results are utilized for the sizing of the detention pond and the pipes.

c. Detention discharge and storage calculation method(s).

The storm drain storage for the development was modeled using Autodesk Sanitary and Storm Sewer Analysis software (SSA). This model was run using the TR-55 methodology to determine discharge from the proposed detention basin. This discharge is based on the pre-development 100-year flow rate with an addition of the pass-through offsite flow from the UDOT culvert to the east. Once this discharge rate was established, a post-development sub-basin was created within the modeling software, and a pond was sized. This pond is sized to accommodate the incoming post-development flows and controlled discharge at the established pre-development rate. No infiltration was assumed within the model.

d. Discussion and justification of other criteria or calculation methods used that are not presented in or referenced by the CRITERIA.

All inputs necessary to model the system within SSA have been presented within this study or within the model.

3. Hydraulic Criteria

a. Identify various capacity references.

The following information and standards have been utilized in the preparation of this report:

- *Autodesk Sanitary and Storm Sewer Analysis software (SSA).*
- *TR-55 manual (which includes CN values, Time of Concentration, flow characteristics, and information on Manning's equation.)*
- *NOAA Atlas 14 for storm events and flows.*
- *A Manning's n-value of 0.013 was assumed for all piping.*

b. Discussion of other drainage facility design criteria used that are not presented in these criteria.

All inputs necessary to model the system within SSA have been presented within this study or the model.

4. Storm water Quality Criteria

a. BMPs to be used for storm water quality control.

A custom sized BaySaver is proposed to be used as a water quality control system. The BaySaver will treat the 2-year flow and allow bypass of the 100-year flow. Other BMP's will be implemented through the SWPPP, which will be done by others at the time of construction. Refer to Appendix I for BaySaver details.

b. Identify, as appropriate, water-quality capture volume and drain time for extended-detention basins, retention ponds and constructed wetland basins.

The detention basin is designed to contain the maximum volume of XXXXX.XX c.f. and discharge at a rate of xxx.xx cfs. The detention basin will drain in xx number of hours.

c. Identify, as appropriate, runoff volume and flow rates for design of water-quality swales, wetland channels, etc.

The offsite drainage channel will continue to receive pre-development flow rates based on respective return periods.

d. Discussion of other drainage facility design criteria used that are not presented in these CRITERIA or other manuals referenced by the Town of Hideout.

This is not applicable.

5. Waivers from Criteria

a. Identify provisions by section number for which a waiver is requested.
b. Provide justification for each waiver requested.

This is not applicable.

Drainage Facility Design Discuss the following:

1. Proposed concept and typical drainage patterns
2. Compliance with offsite runoff considerations.
3. Anticipated and proposed drainage patterns.
4. Proposed storm water quality management strategy.
5. The content of tables, charts, figures, plates, or drawings presented in the report.
6. Drainage problems encountered and solutions at specific design points.
7. Detention storage and outlet design.
8. Storm water quality BMPs to be used.
9. Maintenance access and aspects of the design.
10. Easements and tracts for drainage purposes, including the conditions and limitations for use.

All of these items have been addressed in detail within this report or the civil plans.

Conclusions

1. Hydrologic Computations (Including computer model input and output listings.)

a. Land use assumptions regarding adjacent properties.

The existing phase 1 and 3 will be included in the drainage analysis of phase 4. Phase 2 will be excluded and considered its own drainage system.

b. Initial and major storm runoff at specific design points.

The site will be designed to capture the 100-year storm event to minimize spread throughout the project. Each set of inlets will be designed so that the spread within the street will allow 12' of drivable area between the two inlets. Double inlets have been added in specific locations to ensure that this is possible. The 100-year storm event will be conveyed in the pipe system and surface flow to the proposed detention pond. This detention pond will discharge at historic, pre-development rates.

c. Historic and fully-developed runoff computations at specific design points.

Refer to Appendix J for details on runoff results from within the SSA model. Refer to Appendix K for SSA model inputs.

d. Hydrographs at critical design points.

Refer to Appendix J for a detailed analysis of the entire site using SSA as the modeling software used for this analysis.

e. Time of concentration and runoff coefficients for each basin.

Refer to Appendix J for detailed calculations for each sub-basin used within the SSA model.

f. Storm water quality BMP sizing calculations including runoff adjustments for minimizing directly-connected impervious areas.

Refer to Appendix I for more details.

2. Hydraulic Computations (Including computer model input and output listings.)
   a. Culvert capacities.
   b. Storm sewer capacity, including energy grade line (EGL) and hydraulic grade line (HGL) elevations.
   c. Gutter capacity as compared to allowable capacity.
   d. Storm inlet capacity including inlet control rating at connection to storm sewer.
   e. Open channel design.
   f. Check and/or channel drop design.
   g. Detention area/volume capacity and outlet capacity calculations for flood detention and water quality basins; depths of detention basins.
   h. Wetland area and area/depth distribution for constructed wetland basins.
   i. Infiltration rates and volumes for porous pavement or release rates where under drains or infiltration is not possible.
   j. Flow rates, velocities, longitudinal slopes and cross-sections for wetland channels and water quality swales.
   k. Downstream/outfall system capacity to the Major Drainage way System.

All items (A – K), if applicable, will be addressed within the SSA model results see within Appendix J.

Additional, refer to Appendix O Deadman Gulch Trash Rack Calculations, Pipe Inlet Flow, and Pipe EGL and HGL.

Mapping

1. General Location Map – Shall include all items as identified for the Preliminary Plan.

a. All drawings shall be 22" x 34' in size.

The plans will be on standard 24" x 36" which match the civil plans.

b. Map shall provide sufficient detail to identify drainage flows entering and leaving the development and general drainage patterns.

Refer to the map within Appendix L.

c. The general location map should be at a scale of 1" 500' to 1" = 4000' and

show the path of all drainage from the upper end of any offsite basins to the defined major drainage ways.

Refer to the map within Appendix L.

d. Identify all major facilities (i.e., irrigation ditches, existing detention facilities, storm water quality facilities, culverts, storm sewers) downstream of the property along the flow path to the nearest major drainage way.

Refer to the map within Appendix L.

e. Basins, basin identification numbers, drainage divides, and topographic contours are to be included.

Refer to the map within Appendix L.

2. Floodplain Mapping. - Shall include all items as identified for the Preliminary Plan.

a. A copy of any published floodplain maps (i.e., flood hazard area delineation, flood insurance rate maps)

Refer to the FEMA map within Appendix M.

b. All major drainage ways shall have the defined floodplain shown on the report drawings.

Refer to the FEMA map within Appendix M. All Shoreline properties are located within floodplain C.

c. Flood hazards from either shallow overland flow, side channels, or concentrated flows.

Refer to the FEMA map within Appendix M.

d. The location of the property in relation to the floodplain(s) and/or flood hazards.

Refer to the FEMA map within Appendix M.

3. Drainage Plan Mapping. - In addition to those items identified for the development of the Preliminary Plan, Drainage mapping shall include the following:

Information required for PP
a. Prepare at a scale of 1" = 20' to 1" = 200' on a 22" x 34" size drawing sheet.

The plans will be on standard 24" x 36" which match the civil plans.

b. Existing topographic contours at 2-feet (or less) intervals, in mountainous areas, the maximum interval may be extended to 5 feet. Final plan approval 1 foot contour intervals shall be shown for areas of little relief. The contours shall extend a minimum of 100-feet beyond the property lines.

See Civil Plans for details. Refer to Appendix N for the Civil Plans.

c. All existing drainage facilities within map limits including basin boundaries and sub-boundaries.

See Civil Plans for details.

d. Conceptual major drainage facilities including proposed storm water quality BMPs, detention basins, storm sewers, swales, riprap, and outlet structures it, the detail consistent with the proposed development plan.

See Civil Plans for details.

e. Any offsite feature including drainage that influences the development.

See Civil Plans for details.

f. Proposed drainage patterns and, if available, proposed contours.

See Civil Plans for details.

g. Legend to define map symbols.

See Civil Plans for details.

h. Project name, address, engineering firm and seal, and date the Title block in lower right corner.

See Civil Plans for details.

i. North arrow, scale and available bench mark information and location for each benchmark.

See Civil Plans for details.

Information required for FP
a. Property lines, existing easements, and easements proposed for dedication, with purposes noted.

See Civil Plans for details.

b. Streets, indicating ROW width, flow line width, curb or roadside swale type, sidewalk, and approximate slopes.

See Civil Plans for details.

c. Existing drainage facilities and structures, including irrigation ditches, roadside ditches, cross pans, drainage ways, gutter flow directions, and culverts. Also show pertinent information such as material, size, shape, slope and locations.

See Civil Plans for details.

d. Proposed type of street flow (i.e., vertical or combination curb and gutter), roadside ditch or swale, gutter, slope and flow directions, and cross pans.

See Civil Plans for details.

e. Proposed storm sewers and open drainage ways, including inlets, manholes, culverts, and other appurtenances, including riprap or other erosion protection.

See Civil Plans for details.

f. Proposed structural water-quality BMPs, their location, sizing, and design information.

See Civil Plans for details.

g. Proposed outfall point for runoff from the developed area and, if required, facilities to convey flows to the final outfall point without damage to downstream properties.

See Civil Plans for details.

h. Routing and accumulation of flows at various critical points for the initial and water-quality storm runoff events, and major storm runoff events.

See Civil Plans for details.

i. Volumes and release rates for detention storage and water-quality capture volume for facilities and information on outlet works.

See Civil Plans for details.

j. Location and water surface profiles or elevations of all previously defined floodplains affecting the property. If floodplains have not been previously published, they shall be defined and shown on the drainage plan.

See Civil Plans for details.

k. Location, and measured or estimated elevations, of all existing and proposed utilities affected by or affecting the drainage design.

See Civil Plans for details.

l. Routing of upstream offsite drainage flow through or around the development.

See Civil Plans for details.

m. Location of any improvements included in the appropriate or accepted outfall system plan, major drainage plan, and/or storm drainage plan.

See Civil Plans for details.

n. Definition of flow path leaving the development through the downstream properties ending at a major drainage way or receiving water.

See Civil Plans for details.

Appendix A: Offsite Culvert Reports (From Others)

Storm Water Drainage Report 02.11.2025
BASIN FLOWS TO EXISTING 36" UDOT CULVERT
Hideout, Utah

This report analysis the subbasins that flow into existing 36" UDOT culvert (Corrugated metal pipe) North of Soaring Hawk Subdivision and South of Klaim subdivision.

10 Year
Storm Water Design criteria requiring the use of a 10-year storm in the analysis is not specified in the governing code. Developer elected to complete the Analysis using the 3 Hour 10 year storm distribution proposed by the Town of Hideout (Rain Gauge-10-TOH). The existing culvert inlet projects into an existing storage basin. The existing culvert discharges to the east side of Long View Drive (above the Shoreline Subdivision).

A storage basin was created when Long View Drive was constructed. This basin will be enhanced to achieve at least 25,000 cuft of storage. A catch basin will be installed to drain the bottom of the storage pond with a 17" orifice plate. The peak flow rate through the orifice during the 10 yr storm will be 8.15 CFS. The down stream piping will be designed to accommodate this flow rate without being surcharged. The maximum storage pond water depth will be approximately 2ft.

100 Year
Storm Water Design criteria requiring the use of a 100-year storm in the analysis is not specified in the governing code. Developer elected to complete the Analysis using the 3 Hour 100-year storm distribution proposed by the Town of Hideout (Rain Gauge-100TOH). The existing culvert inlet projects into an existing storage basin. At peak runoff flow this storage basin does store some water. The existing culvert discharges to the east side of Long View Drive (above the Shoreline Subdivision).

A storage basin was created when Long View Drive was constructed. This basin will be enhanced to achieve at least 25,000 cuft of storage. A catch basin will be installed to drain the bottom of the storage pond with a 17" orifice plate. The peak flow rate through the orifice during the 100-yr storm will be 16.4 CFS. The storage pond weir overflow will discharge 10.9 CFS. The maximum storage pond water depth will be approximately 5ft.

I understand that the Town of Hideout does not and will not assume liability for the drainage facilities design.

Prepared by
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Erichsen Engineering
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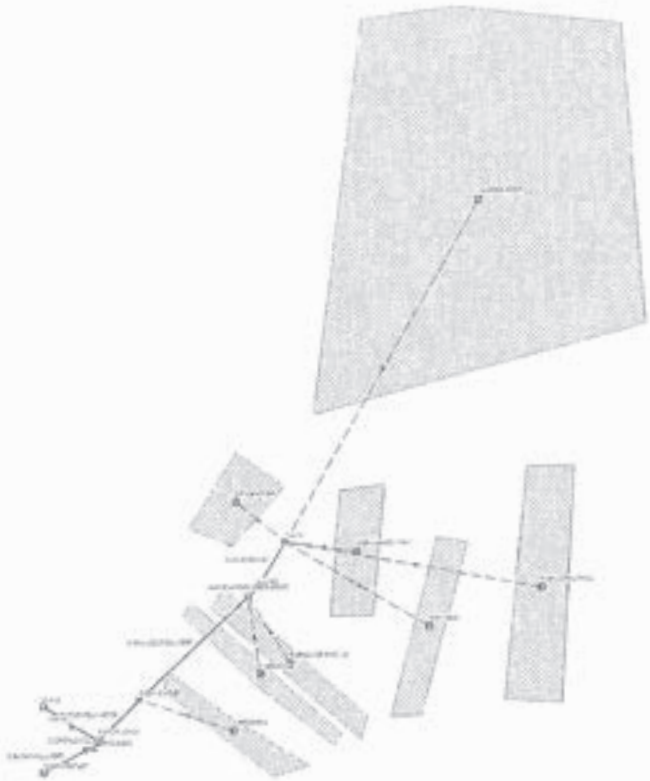
Appendix

10 Year Storm Data
100 Year Storm Data

REGISTERED STRUCTURAL ENGINEER
171360-2203
DAVID W. ERICHSEN
02.11.2025
STATE OF UTAH



Autodesk Storm and Sanitary Analysis

10 YEAR STORM DATA

```
Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.268 (Build 0)
-----------------------------------------------------------------------------------------

*******************
Project Description
*******************
File Name ................. 36 inch 02.10.25.SPF


****************
Analysis Options
****************
Flow Units ................. cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ....... SCS Curve Number
Link Routing Method ....... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date ............. MAR-10-2012 00:00:00
Ending Date ............... MAR-11-2012 00:00:00
Antecedent Dry Days ....... 0.0
Report Time Step .......... 00:05:00
Wet Time Step ............. 00:03:00
Dry Time Step ............. 00:10:00
Routing Time Step ......... 0.50 sec


*************
Element Count
*************
Number of rain gages ...... 5
Number of subbasins ....... 8
Number of nodes ........... 8
Number of links ........... 7
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
Gage                Data                Data       Recording
ID                  Source              Type        Interval
                                                                min
-------------------------------------------------------------
Rain Gage-100       TS-01-TYPE II       INTENSITY       6.00
Rain Gage-100TOH    TOH-100             INTENSITY       5.00
Rain Gage-100-TYPEIITS-01-TYPE II       INTENSITY       6.00
Rain Gage-10-TOH    TOH-10              INTENSITY       5.00
Rain Gage-2-TOH     TOH-2               CUMULATIVE      5.00


****************
Subbasin Summary
****************
Subbasin                 Total    Equiv.   Imperv.   Average    Raingage
                          Area     Width      Area     Slope
ID                       acres        ft         %         %
-----------------------------------------------------------------------------
1-UPPER-PROP             53.00    850.00     17.00   40.0000    Rain Gage-10-TOH
2-Prop-NW-SH              8.00    600.00     10.00   40.0000    Rain Gage-10-TOH
3-SH-Lots-DOWNHill           9.00    160.00     42.00   35.0000    Rain Gage-10-TOH
4-SH roads                2.00     25.00    100.00   10.0000    Rain Gage-10-TOH
5-SH-LOTS-UPHILL          14.00    265.00     25.00   25.0000    Rain Gage-10-TOH
6-SR248-NE-SHOULD          11.60    250.00     15.00   20.0000    Rain Gage-10-TOH
7-SR248-NE                0.65     30.00    100.00   10.0000    Rain Gage-10-TOH
8-SR248-SW                0.34     30.00    100.00   10.0000    Rain Gage-10-TOH
```

```
************
Node Summary
************
Node                 Element            Invert   Maximum    Ponded    External
ID                   Type             Elevation    Elev.      Area      Inflow
                                             ft       ft       ft²
-----------------------------------------------------------------------------
11-LV-POND-BOX       JUNCTION           6481.00  6488.00      0.00
1-Junc               JUNCTION           6600.00  6610.00      0.00
3-JUNC               JUNCTION           6584.00  6596.00      0.00
7-36IN-OUTLET        JUNCTION           6494.00  6510.00      0.00
13-24IN-OUTLET       OUTFALL            6480.00  6482.00      0.00
Out-08               OUTFALL            6484.00  6489.50      0.00
5-STOR-SR248         STORAGE            6556.29  6573.00      0.00
9-STOR-LONGV         STORAGE            6484.00  6492.00      0.00


************
Link Summary
************
Link             From Node       To Node          Element          Length     Slope   Manning's
ID                                                Type                 ft         %   Roughness
-----------------------------------------------------------------------------------------------
12-EX-24IN-CULVERT11-LV-POND-BOX  13-24IN-OUTLET  CONDUIT            40.0    5.0000      0.0240
2--EX-CHANNEL    1-Junc          3-JUNC          CHANNEL           300.0    5.3333      0.0320
4-EX-CHANNEL     3-JUNC          5-STOR-SR248    CHANNEL           150.0   18.4733      0.0320
6-36IN-UDOT-CULVERT5-STOR-SR248    7-36IN-OUTLET   CONDUIT           365.0   15.7425      0.0240
8-OUTLET-TO-LV-STOR7-36IN-OUTLET   9-STOR-LONGV    CHANNEL            60.0   18.3333      0.0320
10-ORIF-LONGV    9-STOR-LONGV    11-LV-POND-BOX  ORIFICE
Weir-01          9-STOR-LONGV    Out-08          WEIR


********************
Cross Section Summary
********************
Link             Shape            Depth/        Width        No. of        Cross    Full Flow
Design
ID                               Diameter                   Barrels    Sectional    Hydraulic
Flow
                                                                            Area       Radius
Capacity
                                      ft           ft                        ft²           ft
cfs

-----------------------------------------------------------------------------------------------
---------
12-EX-24IN-CULVERT CIRCULAR          2.00         2.00            1         3.14         0.50
27.40
2--EX-CHANNEL    TRAPEZOIDAL        1.00        10.00            1         7.00         0.68
57.94
4-EX-CHANNEL     TRAPEZOIDAL        1.00         9.00            1         6.00         0.64
89.26
6-36IN-UDOT-CULVERT CIRCULAR          3.00         3.00            1         7.07
0.75        143.35
8-OUTLET-TO-LV-STOR TRAPEZOIDAL       1.00         6.00            1         4.00
0.62         57.71


**************************        Volume         Depth
Runoff Quantity Continuity       acre-ft        inches
**************************     ---------       -------
Total Precipitation ......         9.144         1.113
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         6.529         0.795
Surface Runoff ...........         1.407         0.171
```

Final Surface Storage	1.213	0.148
Continuity Error (%)	-0.060	

Flow Routing Continuity	Volume acre-ft	Volume Mgallons
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.409	0.459
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.403	0.457
Surface Flooding	0.000	0.000
Evaporation Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.005	0.002
Continuity Error (%)	0.045	

****
Composite Curve Number Computations Report
****

Subbasin 1-UPPER-PROP

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	43.99	D	63.00
-	9.01	-	98.00
Composite Area & Weighted CN	53.00		68.95

Subbasin 2-Prop-NW-SH

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.20	-	98.00
Oak & Aspen range, Fair	6.80	D	63.00
Composite Area & Weighted CN	8.00		68.25

Subbasin 3-SH-Lots-DOWNHill

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	5.22	D	63.00
Paved parking & roofs	3.78	D	98.00
Composite Area & Weighted CN	9.00		77.70

Subbasin 4-SH roads

Soil/Surface Description	Area (acres)	Soil Group	CN
-	2.00	-	98.00
Composite Area & Weighted CN	2.00		98.00

Subbasin 5-SH-LOTS-UPHILL

	Area	Soil

Soil/Surface Description	(acres)	Group	CN
Oak & Aspen range, Fair	10.50	D	63.00
Paved parking & roofs	3.50	D	98.00
Composite Area & Weighted CN	14.00		71.75

Subbasin 6-SR248-NE-SHOULD

Soil/Surface Description	Area (acres)	Soil Group	CN
Brush, Fair	9.86	D	77.00
Dirt roads	1.74	D	89.00
Composite Area & Weighted CN	11.60		78.80

Subbasin 7-SR248-NE

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	1.30	B	98.00
Composite Area & Weighted CN	1.30		98.00

Subbasin 8-SR248-SW

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved roads with curbs & sewers	1.20	A	98.00
Composite Area & Weighted CN	1.20		98.00

****
EPA SWMM Time of Concentration Computations Report
****

Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))

Where:

Tc = Time of Concentration (min)
L = Flow Length (ft)
n = Manning's Roughness
i = Rainfall Intensity (in/hr)
S = Slope (ft/ft)

Subbasin 1-UPPER-PROP

Flow length (ft):	2716.19
Pervious Manning's Roughness:	0.30000
Impervious Manning's Roughness:	0.10000
Pervious Rainfall Intensity (in/hr):	0.55650
Impervious Rainfall Intensity (in/hr):	0.55650
Slope (%):	40.00000
Computed TOC (minutes):	93.66

Subbasin 2-Prop-NW-SR

Flow length (ft):	580.82
Pervious Manning's Roughness:	0.20000

```
        Impervious Manning's Roughness:            0.15000
        Pervious Rainfall Intensity (in/hr):       0.55650
        Impervious Rainfall Intensity (in/hr):     0.55650
        Slope (%):                                40.00000
        Computed TOC (minutes):                      29.92

------------------------------
Subbasin 3-SH-Lots-DOWNHill
------------------------------

        Flow length (ft):                          2450.34
        Pervious Manning's Roughness:              0.30000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.55650
        Impervious Rainfall Intensity (in/hr):     0.55650
        Slope (%):                                35.00000
        Computed TOC (minutes):                     101.41

----------------------
Subbasin 4-SH roads
----------------------

        Flow length (ft):                          3484.93
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.55650
        Impervious Rainfall Intensity (in/hr):     0.55650
        Slope (%):                                10.00000
        Computed TOC (minutes):                      25.47

----------------------------
Subbasin 5-SH-LOTS-UPHILL
----------------------------

        Flow length (ft):                          2301.37
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.55650
        Impervious Rainfall Intensity (in/hr):     0.55650
        Slope (%):                                25.00000
        Computed TOC (minutes):                      70.67

------------------------------
Subbasin 6-SR248-NE-SHOULD
------------------------------

        Flow length (ft):                          2021.26
        Pervious Manning's Roughness:              0.15000
        Impervious Manning's Roughness:            0.10000
        Pervious Rainfall Intensity (in/hr):       0.55650
        Impervious Rainfall Intensity (in/hr):     0.55650
        Slope (%):                                20.00000
        Computed TOC (minutes):                      68.79

----------------------
Subbasin 7-SR248-NE
----------------------

        Flow length (ft):                           943.83
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.55650
        Impervious Rainfall Intensity (in/hr):     0.55650
        Slope (%):                                10.00000
        Computed TOC (minutes):                      11.63

----------------------
```

Subbasin 8-SR248-SW

Flow length (ft):	693.70
Pervious Manning's Roughness:	0.20000
Impervious Manning's Roughness:	0.01500
Pervious Rainfall Intensity (in/hr):	0.55650
Impervious Rainfall Intensity (in/hr):	0.55650
Slope (%):	10.00000
Computed TOC (minutes):	7.88

****
Subbasin Runoff Summary
****

Subbasin ID	Total Rainfall in	Total Runon in	Total Evap. in	Total Infil. in	Total Runoff in	Peak Runoff cfs	Runoff Coefficient	Time of Concentration days hh:mm:ss
1-UPPER-PROP	1.11	0.00	0.00	0.85	0.08	0.73	0.067	0 01:33:39
2-Prop-NW-SH	1.11	0.00	0.00	0.84	0.09	1.24	0.082	0 00:29:55
3-SH-Lots-DOWNHill	1.11	0.00	0.00	0.66	0.30	0.85	0.272	0 01:41:24
4-SH roads	1.11	0.00	0.00	0.00	1.05	2.74	0.942	0 00:25:27
5-SH-LOTS-UPHILL	1.11	0.00	0.00	0.79	0.26	3.71	0.230	0 01:10:40
6-SR248-NE-SHOULD	1.11	0.00	0.00	0.82	0.24	3.03	0.212	0 01:08:47
7-SR248-NE	1.11	0.00	0.00	0.00	1.04	1.39	0.931	0 00:11:37
8-SR248-SW	1.11	0.00	0.00	0.00	1.06	0.80	0.954	0 00:07:53

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
11-LV-POND-BOX	1.13	1.84	6482.84	0	01:35	0	0	0:00:00
1-Junc	0.06	0.34	6600.34	0	01:20	0	0	0:00:00
3-JUNC	0.04	0.26	6584.26	0	01:20	0	0	0:00:00
7-36IN-OUTLET	1.04	1.42	6495.42	0	01:20	0	0	0:00:00
13-24IN-OUTLET	0.16	0.75	6480.75	0	01:35	0	0	0:00:00
Out-08	0.00	0.00	6484.00	0	00:00	0	0	0:00:00
5-STOR-SR248	0.20	1.19	6557.48	0	01:23	0	0	0:00:00
9-STOR-LONGV	0.25	1.81	6485.81	0	01:35	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
11-LV-POND-BOX	JUNCTION	0.00	8.15	0	01:35	0.00		
1-Junc	JUNCTION	7.25	7.25	0	01:20	0.00		
3-JUNC	JUNCTION	0.00	7.22	0	01:20	0.00		
7-36IN-OUTLET	JUNCTION	0.80	10.78	0	01:23	0.00		
13-24IN-OUTLET	OUTFALL	0.00	8.15	0	01:35	0.00		
Out-08	OUTFALL	0.00	0.00	0	00:00	0.00		
5-STOR-SR248	STORAGE	4.42	11.15	0	01:20	0.00		
9-STOR-LONGV	STORAGE	0.00	10.66	0	01:20	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded Volume (%)	Time of Max Ponded Volume days	hh:mm	Average Ponded Volume 1000 ft³	Average Ponded Volume (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfs	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
5-STOR-SR248	1.588	1	0	01:23	0.221	0	10.35	0.00	0:00:00	0.000
9-STOR-LONGV	5.255	8	0	01:35	0.576	1	8.15	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
13-24IN-OUTLET	95.86	0.74	8.15
Out-08	0.00	0.00	0.00
System	47.93	0.74	8.15

****
Link Flow Summary
****

```
--------------------------------
  Link ID              Element       Time of   Maximum  Length   Peak Flow      Design  Ratio of
Ratio of       Total  Reported
                        Type        Peak Flow  Velocity  Factor      during        Flow   Maximum
Maximum        Time  Condition
                                   Occurrence  Attained            Analysis    Capacity   /Design
Flow  Surcharged
                                   days hh:mm    ft/sec                 cfs         cfs      Flow
Depth     minutes

--------------------------------------------------------------------------------------------------
--------------------------------
  12-EX-24IN-CULVERT   CONDUIT      0  01:35      6.99    1.00        8.15       27.40      0.30
0.40           0  Calculated
  2--EX-CHANNEL        CHANNEL      0  01:20      4.86    1.00        7.22       57.94      0.12
0.30           0  Calculated
  4-EX-CHANNEL         CHANNEL      0  01:20      2.71    1.00        7.19       89.26      0.08
0.63           0  Calculated
  6-36IN-UDOT-CULVERT  CONDUIT      0  01:23      6.24    1.00       10.35      143.35      0.07
0.29           0  Calculated
  8-OUTLET-TO-LV-STOR  CHANNEL      0  01:20      5.93    1.00       10.66       57.71      0.18
0.71           0  Calculated
  10-ORIF-LONGV        ORIFICE      0  01:35                          8.15
1.00
  Weir-01              WEIR         0  00:00                          0.00
0.00


  ***************************
  Flow Classification Summary
  ***************************

  ------------------------------------------------------------------------------
                     --- Fraction of Time in Flow Class ----   Avg.     Avg.
                         Up    Down  Sub   Sup   Up    Down   Froude   Flow
  Link               Dry  Dry   Dry   Crit  Crit  Crit  Crit   Number   Change
  ------------------------------------------------------------------------------
  12-EX-24IN-CULVERT  0.04  0.00  0.00  0.00  0.96  0.00  0.00     1.46   0.0000
  2--EX-CHANNEL      0.00  0.00  0.00  0.00  0.99  0.00  0.00     1.23   0.0000
  4-EX-CHANNEL       0.01  0.00  0.00  0.99  0.00  0.00  0.00     0.42   0.0000
  6-36IN-UDOT-CULVERT  0.01  0.00  0.00  0.00  0.00  0.00  0.99     1.51   0.0003
  8-OUTLET-TO-LV-STOR  0.02  0.00  0.00  0.94  0.04  0.00  0.00     0.62   0.0000


  ***************************
  Time-Step Critical Elements
  ***************************
  None


  ********************************
  Highest Flow Instability Indexes
  ********************************
  Link 8-OUTLET-TO-LV-STOR (5)
  Link 6-36IN-UDOT-CULVERT (3)


  *************************
  Routing Time Step Summary
  *************************
  Minimum Time Step           :     0.50 sec
  Average Time Step           :     0.50 sec
  Maximum Time Step           :     0.50 sec
  Percent in Steady State     :     0.00
  Average Iterations per Step :     2.00
```

```
Analysis began on:  Tue Feb 11 15:47:24 2025
Analysis ended on:  Tue Feb 11 15:47:26 2025
Total elapsed time: 00:00:02
```

100 YEAR STORM DATA

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.268 (Build 0)

****
Project Description
****
File Name ..... 36 inch culvert basin 02.10.25.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date MAR-10-2012 00:00:00
Ending Date MAR-11-2012 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:03:00
Dry Time Step 00:10:00
Routing Time Step ..... 0.50 sec

****
Element Count
****
Number of rain gages 5
Number of subbasins 8
Number of nodes 8
Number of links 7
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-100	TS-01-TYPE II	INTENSITY	6.00
Rain Gage-100TOH	TOH-100	INTENSITY	5.00
Rain Gage-100-TYPEIITS-01-TYPE II		INTENSITY	6.00
Rain Gage-10-TOH	TOH-10	INTENSITY	5.00
Rain Gage-2-TOH	TOH-2	CUMULATIVE	5.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Equiv. Width ft	Imperv. Area %	Average Slope %	Raingage
1-UPPER-PROP	53.00	850.00	17.00	40.0000	Rain Gage-100TOH
2-Prop-NW-SH	8.00	600.00	10.00	40.0000	Rain Gage-100TOH
3-SH-Lots-DOWNHill	9.00	160.00	42.00	35.0000	Rain Gage-100TOH
4-SH roads	2.00	25.00	100.00	10.0000	Rain Gage-100TOH
5-SH-LOTS-UPHILL	14.00	265.00	25.00	25.0000	Rain Gage-100TOH
6-SR248-NE-SHOOLD	11.60	250.00	15.00	20.0000	Rain Gage-100TOH
7-SR248-NE	0.65	30.00	100.00	10.0000	Rain Gage-100TOH
8-SR248-SW	0.34	30.00	100.00	10.0000	Rain Gage-100TOH

```
************
Node Summary
************
Node                 Element            Invert   Maximum    Ponded    External
ID                   Type             Elevation     Elev.      Area      Inflow
                                            ft        ft       ft²
-----------------------------------------------------------------------------
11-LV-POND-BOX       JUNCTION           6481.00   6488.00      0.00
1-Junc               JUNCTION           6600.00   6610.00      0.00
3-JUNC               JUNCTION           6584.00   6596.00      0.00
7-36IN-OUTLET        JUNCTION           6494.00   6510.00      0.00
13-24IN-OUTLET       OUTFALL            6480.00   6482.00      0.00
Out-08               OUTFALL            6484.00   6489.50      0.00
5-STOR-SR248         STORAGE            6556.29   6573.00      0.00
9-STOR-LONGV         STORAGE            6484.00   6492.00      0.00


************
Link Summary
************
Link             From Node       To Node         Element         Length     Slope   Manning's
ID                                               Type               ft         %   Roughness
-----------------------------------------------------------------------------------------------
12-EX-24IN-CULVERT11-LV-POND-BOX  13-24IN-OUTLET  CONDUIT           40.0    5.0000      0.0240
2--EX-CHANNEL    1-Junc          3-JUNC          CHANNEL          300.0    5.3333      0.0320
4-EX-CHANNEL     3-JUNC          5-STOR-SR248    CHANNEL          150.0   18.4733      0.0320
6-36IN-UDOT-CULVERT5-STOR-SR248    7-36IN-OUTLET   CONDUIT          365.0   15.7425      0.0240
8-OUTLET-TO-LV-STOR7-36IN-OUTLET   9-STOR-LONGV    CHANNEL           60.0   18.3333      0.0320
10-ORIF-LONGV    9-STOR-LONGV    11-LV-POND-BOX  ORIFICE
Weir-01          9-STOR-LONGV    Out-08          WEIR


********************
Cross Section Summary
********************
Link             Shape            Depth/        Width        No. of        Cross    Full Flow
Design
ID                              Diameter                    Barrels    Sectional    Hydraulic
Flow
                                                                           Area       Radius
Capacity
                                     ft           ft                        ft²           ft
cfs

-----------------------------------------------------------------------------------------------
---------
12-EX-24IN-CULVERT CIRCULAR          2.00         2.00            1         3.14         0.50
27.40
2--EX-CHANNEL    TRAPEZOIDAL        1.00        10.00            1         7.00         0.68
57.94
4-EX-CHANNEL     TRAPEZOIDAL        1.00         9.00            1         6.00         0.64
89.26
6-36IN-UDOT-CULVERT CIRCULAR          3.00         3.00            1         7.07
0.75       143.35
8-OUTLET-TO-LV-STOR TRAPEZOIDAL       1.00         6.00            1         4.00
0.62        57.71


**************************        Volume         Depth
Runoff Quantity Continuity       acre-ft        inches
**************************     ---------       -------
Total Precipitation ......        16.125         1.963
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         9.631         1.172
Surface Runoff ...........         5.282         0.643
```

Final Surface Storage	1.228	0.149
Continuity Error (%)	-0.095	

Flow Routing Continuity	Volume acre-ft	Volume Mgallons
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	5.287	1.723
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	5.280	1.720
Surface Flooding	0.000	0.000
Evaporation Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.006	0.002
Continuity Error (%)	0.032	

****
Composite Curve Number Computations Report
****

Subbasin 1-UPPER-PROP

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	43.99	D	63.00
-	9.01	-	98.00
Composite Area & Weighted CN	53.00		68.95

Subbasin 2-Prop-NW-SH

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.20	-	98.00
Oak & Aspen range, Fair	6.80	D	63.00
Composite Area & Weighted CN	8.00		68.25

Subbasin 3-SH-Lots-DOWNHill

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	5.22	D	63.00
Paved parking & roofs	3.78	D	98.00
Composite Area & Weighted CN	9.00		77.70

Subbasin 4-SH roads

Soil/Surface Description	Area (acres)	Soil Group	CN
-	2.00	-	98.00
Composite Area & Weighted CN	2.00		98.00

Subbasin 5-SH-LOTS-UPHILL

	Area	Soil

Soil/Surface Description	(acres)	Group	CN
Oak & Aspen range, Fair	10.50	D	63.00
Paved parking & roofs	3.50	D	98.00
Composite Area & Weighted CN	14.00		71.75

Subbasin 6-SR248-NE-SHOULD

Soil/Surface Description	Area (acres)	Soil Group	CN
Brush, Fair	9.86	D	77.00
Dirt roads	1.74	D	89.00
Composite Area & Weighted CN	11.60		78.80

Subbasin 7-SR248-NE

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	1.30	B	98.00
Composite Area & Weighted CN	1.30		98.00

Subbasin 8-SR248-SW

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved roads with curbs & sewers	1.20	A	98.00
Composite Area & Weighted CN	1.20		98.00

****
EPA SWMM Time of Concentration Computations Report
****

```
Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))

Where:

Tc = Time of Concentration (min)
L  = Flow Length (ft)
n  = Manning's Roughness
i  = Rainfall Intensity (in/hr)
S  = Slope (ft/ft)
```

Subbasin 1-UPPER-PROP

```
Flow length (ft):                          2716.19
Pervious Manning's Roughness:              0.30000
Impervious Manning's Roughness:            0.10000
Pervious Rainfall Intensity (in/hr):       0.98133
Impervious Rainfall Intensity (in/hr):     0.98133
Slope (%):                                40.00000
Computed TOC (minutes):                      74.64
```

Subbasin 2-Prop-NW-SR

```
Flow length (ft):                           580.82
Pervious Manning's Roughness:              0.20000
```

```
        Impervious Manning's Roughness:            0.15000
        Pervious Rainfall Intensity (in/hr):       0.98133
        Impervious Rainfall Intensity (in/hr):     0.98133
        Slope (%):                                40.00000
        Computed TOC (minutes):                      23.85

-----------------------------
Subbasin 3-SH-Lots-DOWNHill
-----------------------------

        Flow length (ft):                          2450.34
        Pervious Manning's Roughness:              0.30000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.98133
        Impervious Rainfall Intensity (in/hr):     0.98133
        Slope (%):                                35.00000
        Computed TOC (minutes):                      80.81

----------------------
Subbasin 4-SH roads
----------------------

        Flow length (ft):                          3484.93
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98133
        Impervious Rainfall Intensity (in/hr):     0.98133
        Slope (%):                                10.00000
        Computed TOC (minutes):                      20.29

----------------------------
Subbasin 5-SH-LOTS-UPHILL
----------------------------

        Flow length (ft):                          2301.37
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.98133
        Impervious Rainfall Intensity (in/hr):     0.98133
        Slope (%):                                25.00000
        Computed TOC (minutes):                      56.32

-----------------------------
Subbasin 6-SR248-NE-SHOULD
-----------------------------

        Flow length (ft):                          2021.26
        Pervious Manning's Roughness:              0.15000
        Impervious Manning's Roughness:            0.10000
        Pervious Rainfall Intensity (in/hr):       0.98133
        Impervious Rainfall Intensity (in/hr):     0.98133
        Slope (%):                                20.00000
        Computed TOC (minutes):                      54.82

----------------------
Subbasin 7-SR248-NE
----------------------

        Flow length (ft):                           943.83
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98133
        Impervious Rainfall Intensity (in/hr):     0.98133
        Slope (%):                                10.00000
        Computed TOC (minutes):                       9.27

----------------------
```

Subbasin 8-SR248-SW

Flow length (ft):	493.70
Pervious Manning's Roughness:	0.20000
Impervious Manning's Roughness:	0.01500
Pervious Rainfall Intensity (in/hr):	0.98133
Impervious Rainfall Intensity (in/hr):	0.98133
Slope (%):	10.00000
Computed TOC (minutes):	6.28

****
Subbasin Runoff Summary
****

Subbasin ID	Total Rainfall in	Total Runon in	Total Evap. in	Total Infil. in	Total Runoff in	Peak Runoff cfs	Runoff Coefficient	Time of Concentration days hh:mm:ss
1-UPPER-PROP	1.96	0.00	0.00	1.28	0.49	8.78	0.250	0 01:14:38
2-Prop-NW-SH	1.96	0.00	0.00	1.28	0.50	3.04	0.254	0 00:23:50
3-SH-Lots-DOWNHill	1.96	0.00	0.00	0.89	0.91	4.18	0.466	0 01:20:48
4-SH roads	1.96	0.00	0.00	0.00	1.90	6.21	0.968	0 00:20:17
5-SH-LOTS-UPHILL	1.96	0.00	0.00	1.15	0.75	9.44	0.380	0 00:56:19
6-SR248-NE-SHOULD	1.96	0.00	0.00	1.13	0.77	7.19	0.395	0 00:54:49
7-SR248-NE	1.96	0.00	0.00	0.00	1.89	2.93	0.964	0 00:09:16
8-SR248-SW	1.96	0.00	0.00	0.00	1.92	1.68	0.979	0 00:06:16

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
11-LV-POND-BOX	1.26	2.34	6483.34	0	01:52	0	0	0:00:00
1-Junc	0.11	0.66	6600.66	0	01:35	0	0	0:00:00
3-JUNC	0.09	0.51	6584.51	0	01:35	0	0	0:00:00
7-36IN-OUTLET	1.11	1.84	6495.84	0	01:40	0	0	0:00:00
13-24IN-OUTLET	0.27	1.12	6481.12	0	01:52	0	0	0:00:00
Out-08	0.00	0.00	6484.00	0	00:00	0	0	0:00:00
5-STOR-SR248	0.39	2.61	6558.90	0	01:36	0	0	0:00:00
9-STOR-LONGV	0.72	5.16	6489.16	0	01:52	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
11-LV-POND-BOX	JUNCTION	0.00	16.39	0	01:52	0.00		
1-Junc	JUNCTION	23.51	23.51	0	01:35	0.00		
3-JUNC	JUNCTION	0.00	23.49	0	01:35	0.00		
7-36IN-OUTLET	JUNCTION	1.68	29.52	0	01:36	0.00		
13-24IN-OUTLET	OUTFALL	0.00	16.39	0	01:52	0.00		
Out-08	OUTFALL	0.00	10.86	0	01:52	0.00		
5-STOR-SR248	STORAGE	10.12	29.54	0	01:30	0.00		
9-STOR-LONGV	STORAGE	0.00	29.51	0	01:36	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum Ponded Volume 1000 ft³	Maximum Ponded (%)	Time of Max Ponded days	hh:mm	Average Ponded Volume 1000 ft³	Average Ponded (%)	Maximum Storage Node Outflow cfs	Maximum Exfiltration Rate cfs	Time of Max. Exfiltration Rate hh:mm:ss	Total Exfiltrated Volume 1000 ft³
5-STOR-SR248	4.486	2	0	01:36	0.516	0	29.18	0.00	0:00:00	0.000
9-STOR-LONGV	25.010	39	0	01:52	2.667	4	27.25	0.00	0:00:00	0.000

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
13-24IN-OUTLET	96.05	2.40	16.39
Out-08	6.42	5.55	10.86
System	51.24	7.95	27.25

****
Link Flow Summary
****

Link ID	Element Type	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow	Total Time minutes	Reported Condition	Surcharged Depth
12-EX-24IN-CULVERT	CONDUIT	0 01:52	8.13	1.00	16.39	27.40	0.60	0.61	0	Calculated	
2--EX-CHANNEL	CHANNEL	0 01:35	7.03	1.00	23.49	57.94	0.41	0.58	0	Calculated	
4-EX-CHANNEL	CHANNEL	0 01:35	5.93	1.00	23.47	89.26	0.26	0.75	0	Calculated	
6-36IN-UDOT-CULVERT	CONDUIT	0 01:36	7.07	1.00	29.18	143.35	0.20	0.59	0	Calculated	
8-OUTLET-TO-LV-STOR	CHANNEL	0 01:36	8.48	1.00	29.51	57.71	0.51	0.92	0	Calculated	
10-ORIF-LONGV	ORIFICE	0 01:52			16.39			1.00			
Weir-01	WEIR	0 01:52			10.86			0.66			

****
Flow Classification Summary
****

Link	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Avg. Froude Number	Avg. Flow Change
	--- Fraction of Time in Flow Class ----								
12-EX-24IN-CULVERT	0.04	0.00	0.00	0.00	0.96	0.00	0.00	1.47	0.0000
2--EX-CHANNEL	0.00	0.00	0.00	0.00	0.99	0.00	0.00	1.32	0.0000
4-EX-CHANNEL	0.01	0.00	0.00	0.93	0.06	0.00	0.00	0.52	0.0000
6-36IN-UDOT-CULVERT	0.01	0.00	0.00	0.00	0.00	0.00	0.99	1.47	0.0001
8-OUTLET-TO-LV-STOR	0.02	0.00	0.00	0.85	0.12	0.00	0.00	0.71	0.0000

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
Link 8-OUTLET-TO-LV-STOR (3)
Link 6-36IN-UDOT-CULVERT (2)

****
Routing Time Step Summary
****

Minimum Time Step	:	0.50 sec
Average Time Step	:	0.50 sec
Maximum Time Step	:	0.50 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	2.00

```
Analysis began on:  Tue Feb 11 15:06:36 2025
Analysis ended on:  Tue Feb 11 15:06:38 2025
Total elapsed time: 00:00:02
```

Storm Water Drainage Draft Report

Deadman Gulch
Hideout, Utah

This report analysis the subbasins that flow into Deadman Gulch and subsequently in the existing 42" corrugated metal pipe.

Storm Water Design criteria requiring the use of a 100 year storm in the analysis is not specified in the governing code. Developer elected to complete the Analysis using the 3 Hour 100-year storm distribution proposed by the Town of Hideout (RG-TOH-100).

The associated Peak Flow, at the outlet of the existing 42" culvert under the highway, from the analysis is 109 CFS.

I understand that the Town of Hideout does not and will not assume liability for the drainage facilities design.

David W. Erichsen

Prepared by

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REGISTERED STRUCTURAL ENGINEER
171360-2203
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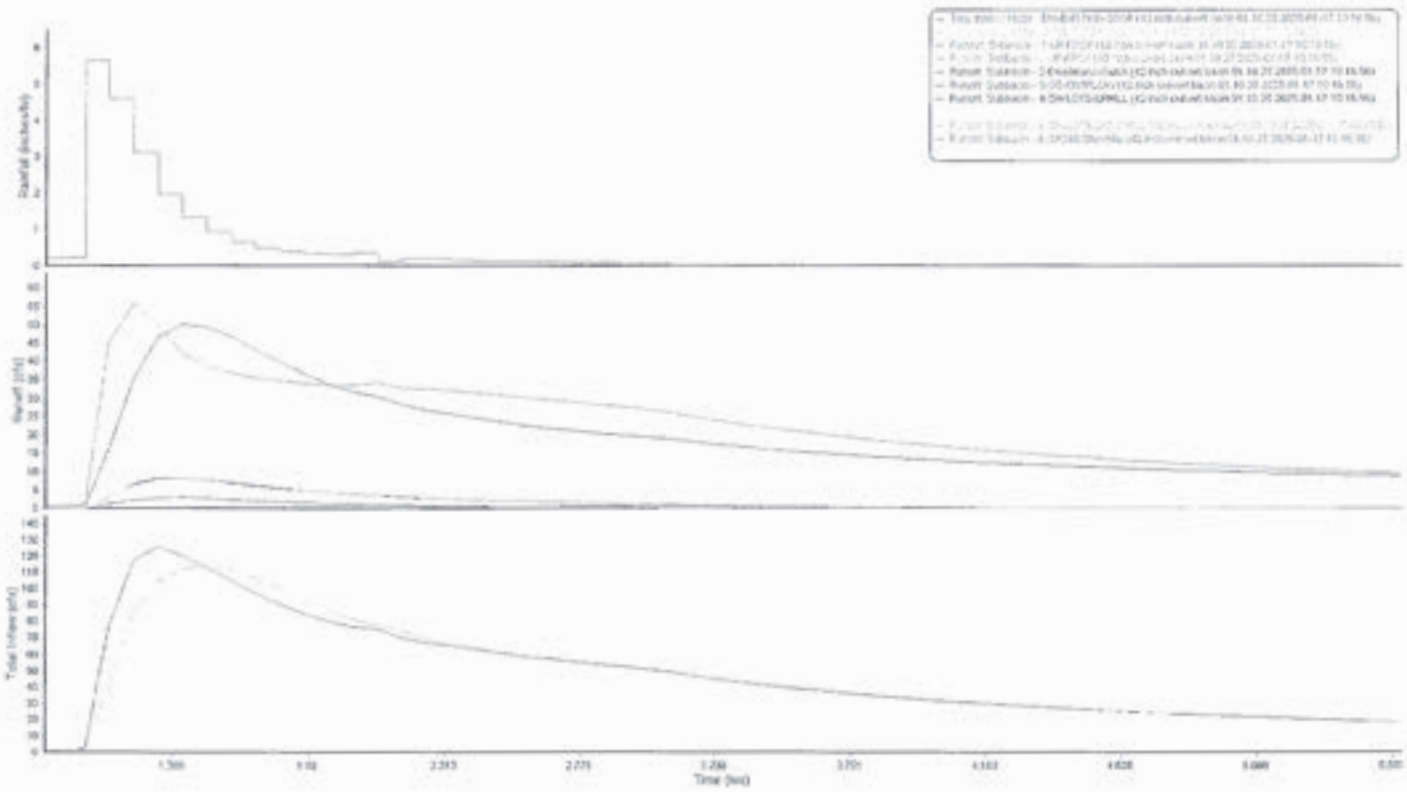
David W. Erichsen
01/17/25
STATE OF UTAH



Autodesk Storm and Sanitary Analysis

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.268 (Build 0)

****
Project Description
****
File Name ..... 42 inch culvert basin 01.10.25.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date MAR-10-2012 00:00:00
Ending Date MAR-11-2012 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:03:00
Dry Time Step 01:00:00
Routing Time Step ..... 0.50 sec

****
Element Count
****
Number of rain gages 7
Number of subbasins 8
Number of nodes 2
Number of links 1
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
RG-100-2	TS-100-2	INTENSITY	6.00
RG-100YR-1	TS-100-1	CUMULATIVE	6.00
RG-10-1	1 YR	CUMULATIVE	6.00
RG-10-2	TS-10-2	CUMULATIVE	6.00
RG-10-TOH	TS-TOH-10	INTENSITY	5.00
RG-2-TOH	TS-TOH-2	INTENSITY	5.00
RG-TOH-100	TS-100-TOH	INTENSITY	5.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Equiv. Width ft	Imperv. Area %	Average Slope %	Raingage
1-UP-PROP	208.00	1205.00	30.00	42.0000	RG-TOH-100
2-Deadmans-Gulch	106.00	801.00	0.00	40.0000	RG-TOH-100
3-GE-OUTFLOW	180.00	1100.00	40.00	0.5000	RG-TOH-100
4-SH-LOTS-UPHILL	7.30	170.00	49.00	30.0000	RG-TOH-100
5-SH-ROAD	2.20	25.00	100.00	10.0000	RG-TOH-100
6-SH-LOTS-DOWNHILL	6.80	150.00	54.00	30.0000	RG-TOH-100

```
6-SR248-Shoulder          1.52     40.00    100.00   45.0000    RG-TOH-100
7-SR248                  1.14     30.00    100.00   11.0000    RG-TOH-100

************
Node Summary
************
Node                 Element            Invert   Maximum    Ponded    External
ID                   Type             Elevation     Elev.      Area      Inflow
                                             ft        ft       ft²
-----------------------------------------------------------------------------
Out-DM               OUTFALL            6462.80   6466.30      0.00
DM-EXISTING-STOR     STORAGE            6571.72   6590.00      0.00

************
Link Summary
************
Link            From Node       To Node         Element         Length     Slope   Manning's
ID                                              Type               ft         %   Roughness
-----------------------------------------------------------------------------------------------
Link-05         DM-EXISTING-STOROut-DM          CONDUIT          922.0   11.0136      0.0240

*********************
Cross Section Summary
*********************
Link             Shape            Depth/        Width        No. of        Cross    Full Flow
Design
ID                              Diameter                    Barrels    Sectional    Hydraulic
Flow
                                                                           Area       Radius
Capacity
                                     ft           ft                        ft²           ft
cfs
-----------------------------------------------------------------------------------------------
---------
Link-05          CIRCULAR          3.50         3.50             1         9.62         0.88
187.31

*************************        Volume         Depth
Runoff Quantity Continuity       acre-ft        inches
*************************     ---------       -------
Total Precipitation ......        83.912         1.963
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........        48.689         1.139
Surface Runoff ...........        26.648         0.623
Final Surface Storage ....         8.663         0.203
Continuity Error (%) .....        -0.104

*************************        Volume        Volume
Flow Routing Continuity          acre-ft      Mgallons
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        26.663         8.689
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........        26.662         8.688
Surface Flooding .........         0.000         0.000
Evaporation Loss .........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.014         0.004
Continuity Error (%) .....        -0.046
```

****
Composite Curve Number Computations Report
****

Subbasin 1-UP-PROP

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	145.60	D	63.00
-	41.60	-	98.00
Paved parking & roofs	20.80	D	98.00
Composite Area & Weighted CN	208.00		73.50

Subbasin 2-Deadmans-Gulch

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	106.00	C	60.00
Composite Area & Weighted CN	106.00		60.00

Subbasin 3-GK-OUTFLOW

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	108.00	D	63.00
Paved parking & roofs	72.00	B	98.00
Composite Area & Weighted CN	180.00		77.00

Subbasin 4-SH-LOTS-UPHILL

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	3.58	D	98.00
Oak & Aspen range, Fair	3.72	D	63.00
Composite Area & Weighted CN	7.30		80.15

Subbasin 5-SH-ROAD

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	2.20	D	98.00
Composite Area & Weighted CN	2.20		98.00

Subbasin 6-SH-LOTS-DOWNHILL

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	3.67	D	98.00
Oak & Aspen range, Fair	3.13	D	63.00
Composite Area & Weighted CN	6.80		81.90

Subbasin 6-SR248-Shoulder

Soil/Surface Description	Area (acres)	Soil Group	CN
Sagebrush range, Fair	4.00	D	70.00
Composite Area & Weighted CN	4.00		70.00

Subbasin 7-SR248

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	1.14	D	98.00
Composite Area & Weighted CN	1.14		98.00

****
EPA SWMM Time of Concentration Computations Report
****

Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))

Where:

Tc = Time of Concentration (min)
L = Flow Length (ft)
n = Manning's Roughness
i = Rainfall Intensity (in/hr)
S = Slope (ft/ft)

Subbasin 1-UP-PROP

Flow length (ft):	7519.35
Pervious Manning's Roughness:	0.30000
Impervious Manning's Roughness:	0.01500
Pervious Rainfall Intensity (in/hr):	0.98150
Impervious Rainfall Intensity (in/hr):	0.98150
Slope (%):	42.00000
Computed TOC (minutes):	105.71

Subbasin 2-Deadmans-Gulch

Flow length (ft):	5764.71
Pervious Manning's Roughness:	0.60000
Impervious Manning's Roughness:	0.01500
Pervious Rainfall Intensity (in/hr):	0.98150
Impervious Rainfall Intensity (in/hr):	0.98150
Slope (%):	40.00000
Computed TOC (minutes):	165.62

Subbasin 3-GE-OUTFLOW

Flow length (ft):	7128.26
Pervious Manning's Roughness:	0.10000
Impervious Manning's Roughness:	0.01500
Pervious Rainfall Intensity (in/hr):	0.98150
Impervious Rainfall Intensity (in/hr):	0.98150
Slope (%):	0.50000
Computed TOC (minutes):	188.95

```
----------------------------
Subbasin 4-SH-LOTS-UPHILL
----------------------------

        Flow length (ft):                          1870.59
        Pervious Manning's Roughness:              0.15000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                30.00000
        Computed TOC (minutes):                      57.69

--------------------
Subbasin 5-SH-ROAD
--------------------

        Flow length (ft):                          3833.42
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                10.00000
        Computed TOC (minutes):                      21.49

-----------------------------
Subbasin 6-SH-LOTS-DOWNHILL
-----------------------------

        Flow length (ft):                          1974.79
        Pervious Manning's Roughness:              0.15000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                30.00000
        Computed TOC (minutes):                      59.87

----------------------------
Subbasin 6-SR248-Shoulder
----------------------------

        Flow length (ft):                          1655.34
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                45.00000
        Computed TOC (minutes):                      39.12

-------------------
Subbasin 7-SR248
-------------------

        Flow length (ft):                          1655.34
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                11.00000
        Computed TOC (minutes):                      12.62


***********************
Subbasin Runoff Summary
***********************
```

Subbasin ID	Total Rainfall in	Total Runon in	Total Evap. in	Total Infil. in	Total Runoff in	Peak Runoff cfs	Runoff Coefficient	Time of Concentration days hh:mm:ss
1-UP-PROP	1.96	0.00	0.00	1.06	0.71	55.82	0.360	0 01:45:42
2-Deadmans-Gulch	1.96	0.00	0.00	1.90	0.01	0.76	0.007	0 02:45:37
3-GE-OUTFLOW	1.96	0.00	0.00	0.85	0.80	50.29	0.408	0 03:08:56
4-SH-LOTS-UPHILL	1.96	0.00	0.00	0.66	1.22	8.28	0.623	0 00:57:41
5-SH-ROAD	1.96	0.00	0.00	0.00	1.90	6.65	0.968	0 00:21:29
6-SH-LOTS-DOWNHILL	1.96	0.00	0.00	0.57	1.33	8.21	0.677	0 00:59:51
6-SR248-Shoulder	1.96	0.00	0.00	0.00	1.96	3.00	0.997	0 00:39:07
7-SR248	1.96	0.00	0.00	0.00	1.90	4.70	0.970	0 00:12:37

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
Out-DM	0.52	1.97	6464.77	0	01:29	0	0	0:00:00
DM-EXISTING-STOR	1.29	9.44	6581.16	0	01:29	0	0	0:00:00

****
Node Flow Summary
****

Node ID	Element Type	Maximum Lateral Inflow cfs	Peak Inflow cfs	Time of Peak Inflow Occurrence days	hh:mm	Maximum Flooding Overflow cfs	Time of Peak Flooding Occurrence days	hh:mm
Out-DM	OUTFALL	0.00	113.93	0	01:29	0.00		
DM-EXISTING-STOR	STORAGE	126.14	126.14	0	01:20	0.00		

****
Storage Node Summary
****

Storage Node ID	Maximum	Maximum	Time of Max	Average	Average	Maximum

Maximum Exfiltration Rate cfs	Time of Max. Exfiltration Rate hh:mm:ss	Total Ponded Exfiltrated Volume 1000 ft³	Ponded Volume (%)	Ponded Volume days hh:mm	Ponded Volume 1000 ft³	Ponded Volume (%)	Storage Node Outflow cfs
DM-EXISTING-STOR		17.577	21	0 01:29	1.427	2	113.93
0.00	0:00:00	0.000					

****
Outfall Loading Summary
****

Outfall Node ID	Flow Frequency (%)	Average Flow cfs	Peak Inflow cfs
Out-DM	99.24	13.55	113.93
System	99.24	13.55	113.93

****
Link Flow Summary
****

Link ID	Element Reported Type Condition	Time of Peak Flow Occurrence days hh:mm	Maximum Velocity Attained ft/sec	Length Factor	Peak Flow during Analysis cfs	Design Flow Capacity cfs	Ratio of Maximum /Design Flow	Ratio of Maximum Flow Depth	Total Time minutes	Surcharged
Link-05	CONDUIT	0 01:29	14.12	1.00	113.93	187.31	0.61	0.78	0	Calculated

****
Flow Classification Summary
****

Link	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Avg. Froude Number	Avg. Flow Change
	--- Fraction of Time in Flow Class ----								
Link-05	0.00	0.00	0.00	0.07	0.92	0.00	0.00	1.27	0.0006

****
Time-Step Critical Elements
****
None

```
*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.

*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     0.50 sec
Average Time Step           :     0.50 sec
Maximum Time Step           :     0.50 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     2.00


Analysis began on:  Fri Jan 17 10:16:53 2025
Analysis ended on:  Fri Jan 17 10:16:54 2025
Total elapsed time: 00:00:01
```

Deadman Gulch 42" Culvert Flows

100 yr	TOH Storm	
42"	Discharge	108.64 CFS
10Yr	TOH Storm	
42"	Discharge	45.96 CFS

Storm Water Drainage Report 02.11.2025
BASIN FLOWS TO EXISTING 36” UDOT CULVERT
Hideout, Utah

This report analysis the subbasins that flow into existing 36” UDOT culvert (Corrugated metal pipe) North of Soaring Hawk Subdivision and South of Klaim subdivision.

10 Year
Storm Water Design criteria requiring the use of a 10-year storm in the analysis is not specified in the governing code. Developer elected to complete the Analysis using the 3 Hour 10 year storm distribution proposed by the Town of Hideout (Rain Gauge-10-TOH). The existing culvert inlet projects into an existing storage basin. The existing culvert discharges to the east side of Long View Drive (above the Shoreline Subdivision).

A storage basin was created when Long View Drive was constructed. This basin will be enhanced to achieve at least 25,000 cuft of storage. A catch basin will be installed to drain the bottom of the storage pond with a 17” orifice plate. The peak flow rate through the orifice during the 10 yr storm will be 8.15 CFS. The down stream piping will be designed to accommodate this flow rate without being surcharged. The maximum storage pond water depth will be approximately 2ft.

100 Year
Storm Water Design criteria requiring the use of a 100-year storm in the analysis is not specified in the governing code. Developer elected to complete the Analysis using the 3 Hour 100-year storm distribution proposed by the Town of Hideout (Rain Gauge-100TOH). The existing culvert inlet projects into an existing storage basin. At peak runoff flow this storage basin does store some water. The existing culvert discharges to the east side of Long View Drive (above the Shoreline Subdivision).

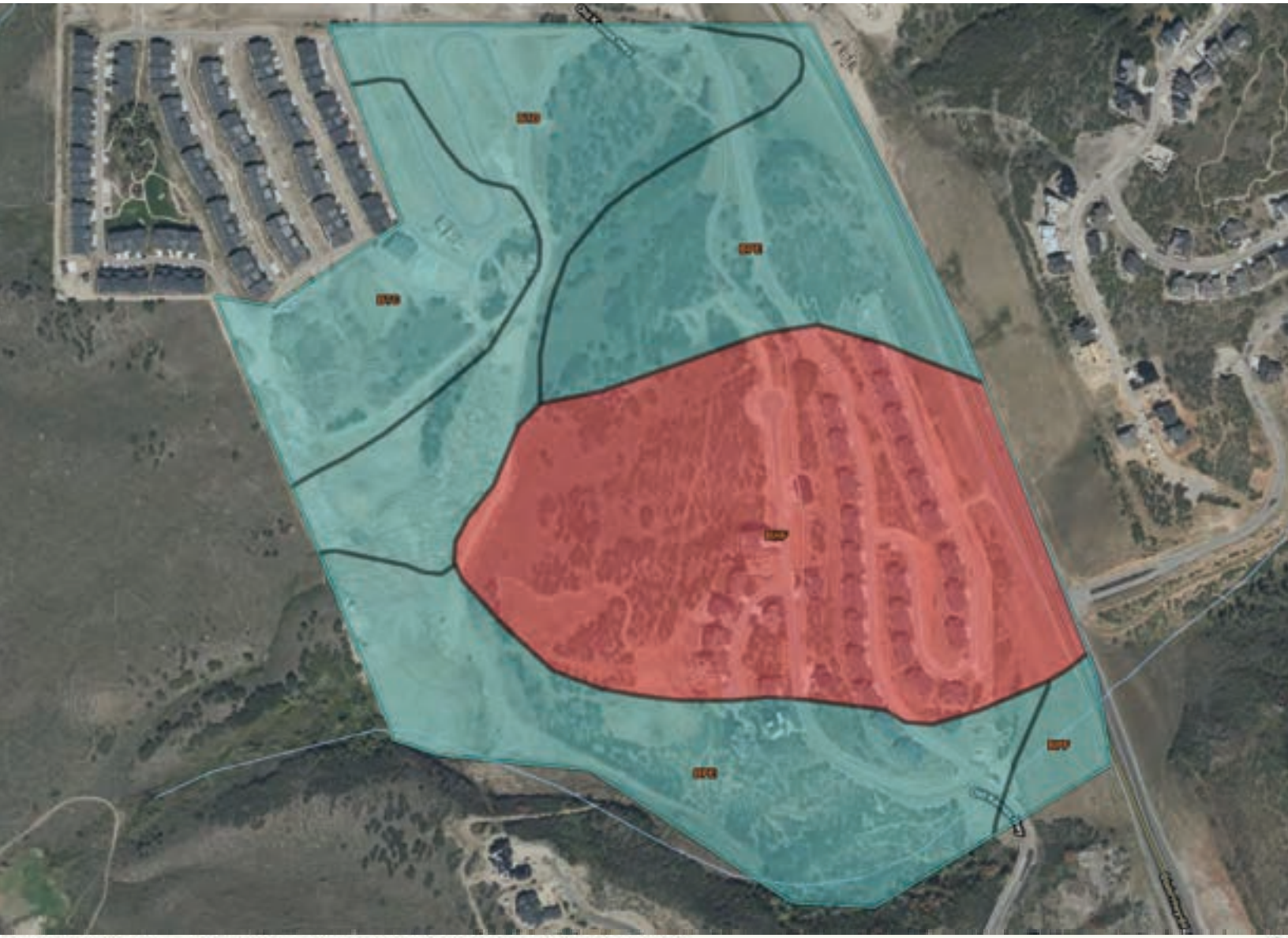
A storage basin was created when Long View Drive was constructed. This basin will be enhanced to achieve at least 25,000 cuft of storage. A catch basin will be installed to drain the bottom of the storage pond with a 17” orifice plate. The peak flow rate through the orifice during the 100-yr storm will be 16.4 CFS. The storage pond weir overflow will discharge 10.9 CFS. The maximum storage pond water depth will be approximately 5ft.

I understand that the Town of Hideout does not and will not assume liability for the drainage facilities design.

Prepared by
David Erichsen
Erichsen Engineering
david@erichsen.us
(801) 953-5368

08.11.25
Storm Flow at 36" Highway Culvert Discharge
10 Year TOH 11 CFS
100 Year TOH 30 CFS

Appendix B: USDA Soil Survey Results

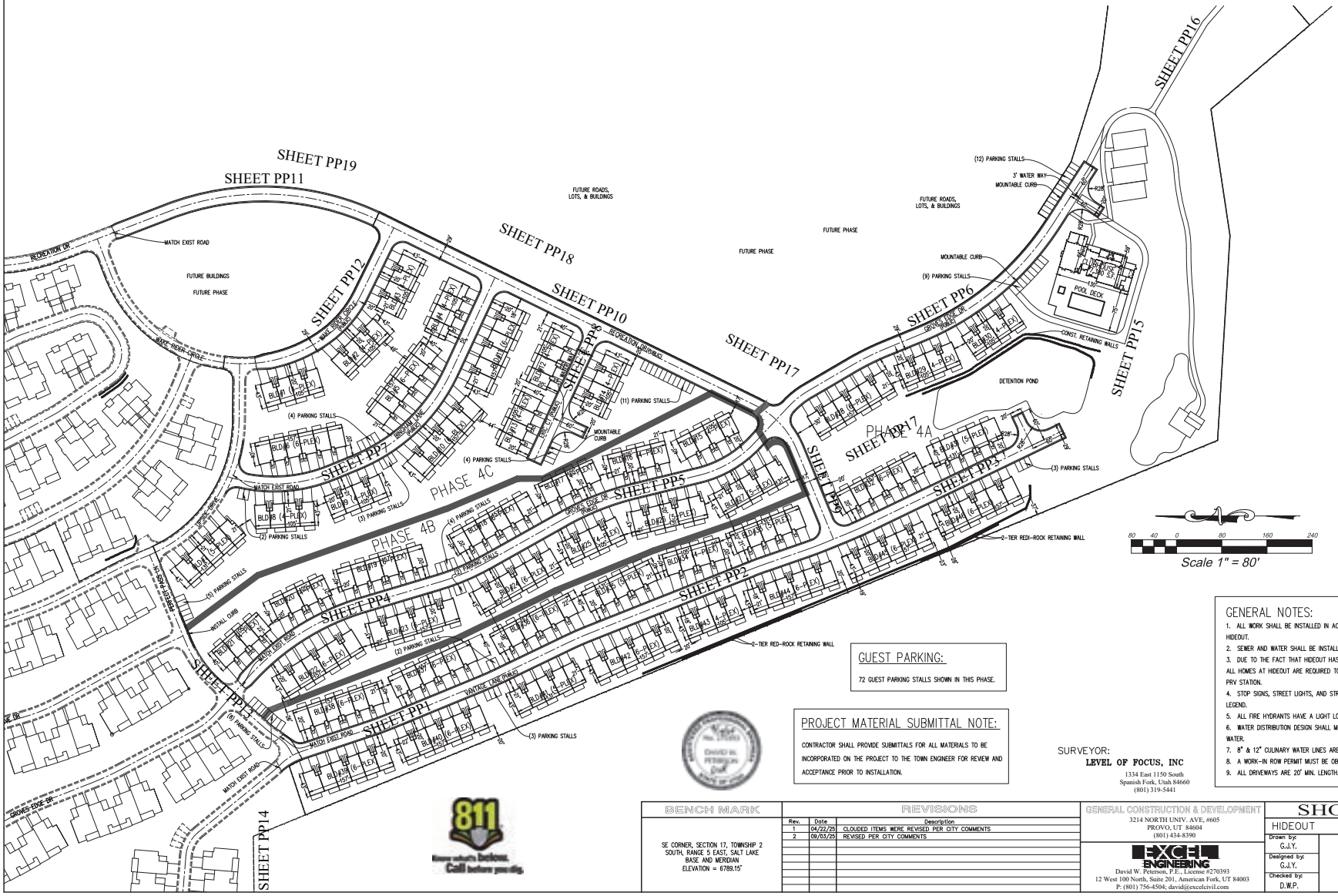


Summary by Map Unit — Heber Valley Area, Utah - Parts of Wasatch and Utah Counties (UT622)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BHF	Brad-Rock outcrop complex, 15 to 65 percent slopes	D	43.0	34.6%
BPE	Broadhead-Little Pole association, steep	C	43.1	34.7%
BPF	Broadhead-Little Pole association, very steep	C	2.4	1.9%
BTC	Broadhead soils, 6 to 15 percent slopes	C	14.0	11.3%
BTD	Broadhead soils, 15 to 25 percent slopes	C	21.7	17.5%
Totals for Area of Interest			**124.3**	**100.0%**

Appendix C: Shoreline Ph. 4 Site

SHORELINE - PHASE 4



SHEET INDEX

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SHORELINE PHASE 4 PLAT BOUNDARY SURVEY
C2 DEMOLITION PLAN
C3 SNOW PLAN
C4 SIGNAGE PLAN
U1 OVERALL UTILITY PLAN
U2 GAS & POWER PLAN
G1 OVERALL GRADING & DRAINAGE PLAN
G2 OVERALL DRAINAGE PIPE LAYOUT
G3 WALL GRADING PLAN
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PP2 VANTAGE LANE PLAN/PROFILE
PP3 VANTAGE LANE PLAN/PROFILE
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PP5 GROVES EDGE DRIVE PLAN/PROFILE
PP6 GROVES EDGE DRIVE PLAN/PROFILE
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PP8 ERIC COURT PLAN/PROFILE
PP9 RECREATION DRIVE PLAN/PROFILE
PP10 RECREATION DRIVE PLAN/PROFILE
PP11 RECREATION DRIVE PLAN/PROFILE
PP12 WAKE RIDER CIRCLE PLAN/PROFILE
PP13 STORM DRAIN PLAN/PROFILE
PP14 SEWER PLAN/PROFILE
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PP16 DRAINAGE PIPE PLAN/PROFILE
PP17 UDOT DRAINAGE PIPE PLAN/PROFILE
PP18 UDOT DRAINAGE PIPE PLAN/PROFILE
PP19 UDOT DRAINAGE PIPE PLAN/PROFILE
D1 DETAIL SHEET

GENERAL NOTES:

1. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH APWA STANDARDS AS MODIFIED BY THE TOWN OF HIDEOUT.
2. SEWER AND WATER SHALL BE INSTALLED IN ACCORDANCE WITH JSSD STANDARDS.
3. DUE TO THE FACT THAT HIDEOUT HAS SIGNIFICANTLY HIGH WATER PRESSURE PRIOR TO THE PRV STATIONS, ALL HOMES AT HIDEOUT ARE REQUIRED TO INSTALL A PRV VALVE TO PROTECT THE HOME FROM FAILURE OF A PRV STATION.
4. STOP SIGNS, STREET LIGHTS, AND STREET SIGNS AR SHOWN BY SYMBOLS ON THE DRAWINGS. REFER TO THE LEGEND.
5. ALL FIRE HYDRANTS HAVE A LIGHT LOCATION WITHIN 10' TO AID IN THEIR LOCATIONS DURING THE WINTER.
6. WATER DISTRIBUTION DESIGN SHALL MEET THE MINIMUM REQUIREMENTS OF THE UTAH DIVISION OF DRINKING WATER.
7. 8" & 12" CULINARY WATER LINES ARE TO BE C-900 PVC
8. A WORK-IN ROW PERMIT MUST BE OBTAINED FROM THE TOWN PRIOR TO ROADWAY CUTS.
9. ALL DRIVEWAYS ARE 20' MIN. LENGTH.

GUEST PARKING:

72 GUEST PARKING STALLS SHOWN IN THIS PHASE.

PROJECT MATERIAL SUBMITTAL NOTE:

CONTRACTOR SHALL PROVIDE SUBMITTALS FOR ALL MATERIALS TO BE INCORPORATED ON THE PROJECT TO THE TOWN ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION.

SURVEYOR:
LEVEL OF FOCUS, INC
1334 East 1150 South
Spanish Fork, Utah 84660
(801) 319-5441

811 Know what's below. Call before you dig.

BENCH MARK	REVISIONS		
SE CORNER, SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN ELEVATION = 6789.15'	Rev.	Date	Description
	1	04/22/25	CLOUDED ITEMS WERE REVISED PER CITY COMMENTS
	2	09/03/25	REVISED PER CITY COMMENTS

GENERAL CONSTRUCTION & DEVELOPMENT
3214 NORTH UNIV. AVE, #605
PROVO, UT 84604
(801) 434-8390

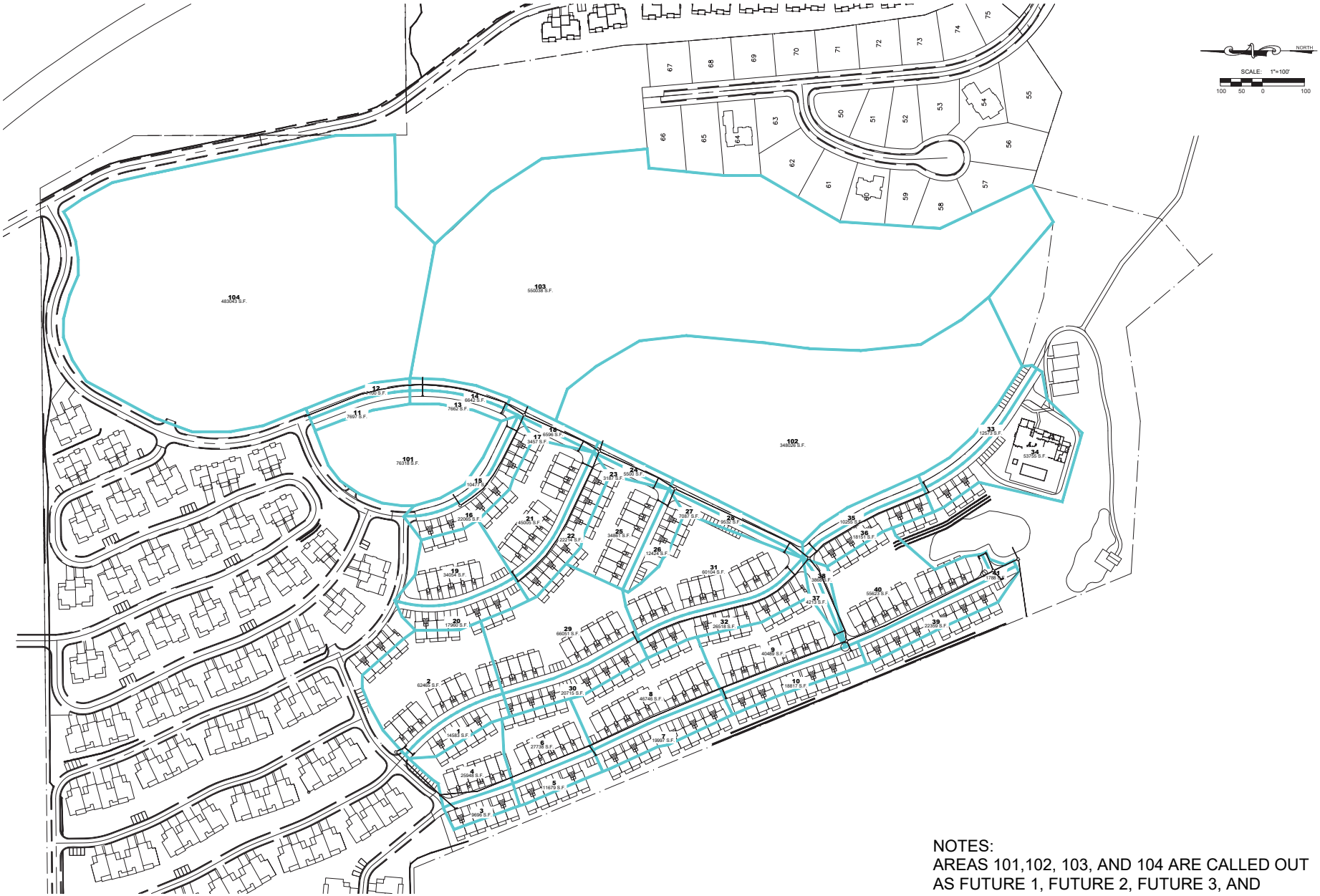
EXCEL ENGINEERING
David W. Peterson, P.E., License #270393
12 West 100 North, Suite 201, American Fork, UT 84003
P: (801) 756-4504; david@excelcivil.com

SHORELINE PHASE 4

HIDEOUT UTAH

Drawn by: G.J.Y.	COVER SHEET/ SITE PLAN	Scale: 1"=80'
Designed by: G.J.Y.		Date: 09/23/24
Checked by: D.W.P.		C1

Appendix D: Shoreline Ph. 4 Contributing Area



NOTES:
AREAS 101,102, 103, AND 104 ARE CALLED OUT AS FUTURE 1, FUTURE 2, FUTURE 3, AND FUTURE 4 WITHIN THE SSA MODEL AND WITHIN THE INPUT TABLE.

LEI
CIVIL
STRUCTURAL
SURVEY
3302 N. Main Street
Spanish Fork, UT 84660
Phone: 801.798.0555
Fax: 801.798.9393
office@lei-eng.com
www.lei-eng.com

STATE OF UTAH
GREGORY D. MAGLEBY
No. 189844
REGISTERED PROFESSIONAL ENGINEER

SHORELINE PHASE 4
HIDEOUT, UTAH

STORM DRAIN EXHIBIT

REVISIONS
1 -
2 -
3 -
4 -
5 -

LEI PROJECT #: 2025-0034
DRAWN BY: BLS
DESIGNED BY: GDM
SCALE: 1"=100'
DATE: 8/22/2025
SHEET 1

Appendix E: Shoreline MDA

Ent 360737 Bk 1017 Pg 1027-1086
Date: 09-JUL-2010 1:00:47PM
Fee: $253.00 Check Filed By: MM
ELIZABETH PALMIER, Recorder
WASATCH COUNTY CORPORATION
For: HIGH COUNTRY TITLE

MASTER DEVELOPMENT AGREEMENT FOR THE HIDEOUT CANYON MASTER PLANNED COMMUNITY

March 11, 2010

Ent 360737 Bk 1017 Pg 1028

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WHEN RECORDED, RETURN TO:

Ent 360737 Bk 1017 Pg 1034

Robert J. Martino
P.O. Box 2080
Park City, UT 84060

MASTER DEVELOPMENT AGREEMENT FOR THE HIDEOUT CANYON MASTER PLANNED COMMUNITY

THIS MASTER DEVELOPMENT AGREEMENT is made and entered as of the 11th day of March, 2010, by and between the Town of Hideout, a political subdivision of the State of Utah, and Mustang Development, L.L.C., a Utah limited liability company.

RECITALS

A. The capitalized terms used in these Recitals are defined in Section 1.2, below.

B. Master Developer owns or controls the Property.

C. The Town has zoned the Property "RSPA".

D. The Town approved the RSPA Zoning Map on March 11th, 2010.

E. Certain portions of the Project have been previously approved and/or constructed.

F. Master Developer and the Town desire that Property be developed in a unified and consistent fashion pursuant to the RSPA Zoning Map and this MDA.

G. Development of the Property will include the Intended Uses.

H. Development of the Project as a master planned community pursuant to this MDA is acknowledged by the parties to be consistent with the Act and the Zoning Ordinance and to operate to the benefit of the Town, Master Developer, and the general public.

I. The parties entered into the Prior Agreement for the development of the Property that the parties now desire to replace with this MDA.

J. The Town Council has reviewed this MDA and determined that it is consistent with the Act, the Zoning Ordinance and the Zoning of the Property.

K. The parties acknowledge that development of the Property pursuant to this MDA will result in significant planning and economic benefits to the Town and its residents by, among other things requiring orderly development of the Property as a master planned community and increasing property tax and other revenues to the Town based on improvements to be constructed on the Property.

L. Development of the Property pursuant to this MDA will also result in significant benefits to Master Developer by providing assurances to Master Developer that it will have the ability to develop the Property in accordance with this MDA.

M. Master Developer and the Town have cooperated in the preparation of this MDA.

N. The parties desire to enter into this MDA to specify the rights and responsibilities of the Master Developer to develop the Property as parts of the Project as expressed in this MDA and the rights and responsibilities of the Town to allow and regulate such development pursuant to the requirements of this MDA.

O. The parties understand and intend that this MDA is a "development agreement" within the meaning of, and entered into pursuant to the terms of Utah Code Ann. §10-9a-102 (2009).

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Town and Developer hereby agree to the following:

Ent 360737 Bk 1017 Pg 1036

TERMS

1. **Incorporation of Recitals and Exhibits/ Definitions.**

1.1. **Incorporation.** The foregoing Recitals and Exhibits "A" – "F" are hereby incorporated into this MDA.

1.2. **Definitions.** As used in this MDA, the words and phrases specified below shall have the following meanings:

1.2.1. **Act** means the Land Use, Development, and Management Act, Utah Code Ann. §§ 10-9a-101, *et seq.* (2009).

1.2.2. **Administrative Amendment** means and includes any amendment to the Exhibits to this MDA or other action that may be approved by the Administrator as provided in Section 23.

1.2.3. **Administrator** means the person designated by the Town as the Administrator of this MDA.

1.2.4. **Applicant** means a person or entity submitting a Development Application, a Modification Application or a request for an Administrative Action.

1.2.5. **Building Permit** means a permit issued by the Town to allow construction, erection or structural alteration of any building, structure, private or Public Infrastructure on any portion of the Project or off-site Infrastructure.

1.2.6. **Buildout** means the completion of all of the development on all of the Project.

1.2.7. **CC&R's** means the Conditions, Covenants and Restrictions regarding certain aspects of design and construction on the Property to be recorded in the chain of title on the Property.

1.2.8. **Commercial Use** means a use allowed by the Zoning Code on those portions of the Property zoned "RVMD" or "RVHD" or "NC" including, but not limited to, office, retail, dining, service, apartments, hotels, shopping centers or similar uses for other developments on the Project whether allowed by the Zone as a permitted or conditional uses.

1.2.9. **Concept Plan** means the plan submitted to the Town for the first stage of the approval of a Development Application.

1.2.10. **Council** means the elected Town Council of the Town.

1.2.11. **Default** means a material breach of this MDA.

1.2.12. **Denied** means a formal denial issued by the final decision-making body of the Town for a particular type of Development Application but does not include review comments or "redlines" by Town staff.

1.2.13. **Density** means the number of Residential Dwelling Units allowed per acre.

1.2.14. **Density Pods** means the areas of the project designated to be specific types of zoning allowed within the RSPA District as more fully illustrated on the RSPA Zoning Map.

1.2.15. **Development Application** means an application to the Town for development of a portion of the Project including a Subdivision, a Commercial Concept Plan, a Building Permit or any other permit, certificate or other authorization from the Town required for development of the Project.

1.2.16. **Development Report** means a report containing the information specified in Sections 3.6 or 3.7 submitted to the Town by Master Developer for the development by Master Developer of any Parcel or for the sale of any Parcel to a Subdeveloper or

the submittal of a Development Application by a Subdeveloper pursuant to an assignment from Master Developer.

1.2.17. **Final Plat** means the recordable map or other graphical representation of land prepared in accordance with Utah Code Ann. § 10-9a-603 (2009), and approved by the Town, effectuating a Subdivision of any portion of the Project.

1.2.18. **Homeowner Association(s) (or "HOA(s)")** means one or more associations formed pursuant to Utah law to perform the functions of an association of property owners.

1.2.19. **Intended Uses** means the use of all or portions of the Project for single-family and multi-family residential units, hotels, restaurants, public facilities, businesses, commercial areas, professional and other offices, services, golf courses, open spaces, parks, trails and other uses as more fully specified in the Zoning Ordinance and the RSPA Zoning Map ,.

1.2.20. **Master Developer** means Mustang Development, L.L.C., a Utah limited liability company, and its assignees or transferees as permitted by this MDA.

1.2.21. **Maximum Residential Units** means the development on the Property of One Thousand Nine Hundred Seventy Five (1,975) Residential Dwelling Units.

1.2.22. **Modification Application** means an application to amend this MDA (but not including those changes which may be made by Administrative Action).

1.2.23. **MDA** means this Master Development Agreement including all of its Exhibits.

1.2.24. **Non-Town Agency** means a governmental or quasi-governmental entity, other than those of the Town, which has jurisdiction over the approval of any aspect of the Project.

1.2.25. **Notice** means any notice to or from any party to this MDA that is either required or permitted to be given to another party.

1.2.26. **Open Space** means any land which is in, either: an open and undeveloped condition including, without limitation, natural areas, wildlife or native plant habitat, wetlands, watersheds, streams and stream corridors, wildlife preserves; preserved historic sites; areas for active or passive recreational activities including, without limitation, HOA common areas and golf course property.

1.2.27. **Outside Property** means the approximately Two Hundred Eighty acres (280) of property shown on Exhibit "B" that is outside the current boundaries of the Town.

1.2.28. **Outsourc[e][ing]** means the process of the Town contracting with Town Consultants or paying overtime to Town employees to provide technical support in the review and approval of the various aspects of a Development Application as is more fully set out in this MDA.

1.2.29. **Parcel** means part or all of a Density Pod that is not an individually developable lot.

1.2.30. **Phase** means the development of a portion of the Project at a point in a logical sequence as determined by Master Developer.

1.2.31. **Planning Commission** means the Town's Planning and Zoning Commission established by the Zoning Ordinance.

1.2.32. **Previously Approved Phases** means those Phases of the Project that have received certain levels of approvals for development as more fully specified in Exhibit "D".

1.2.33. **Previously Constructed Improvements** means those elements of Public Infrastructure previously constructed by Master Developer as more fully specified in Exhibit "E".

1.2.34. **Prior Agreement** means an agreement between the parties entered into November 20, 2009.

1.2.35. **Project** means the development to be constructed on the Property pursuant to this MDA with the associated public and private facilities, Intended Uses, Densities, Phases and all of the other aspects approved as part of this MDA.

1.2.36. **Property** means that approximately One Thousand Three Hundred Five (1,305) acres of real property owned or controlled by Master Developer more fully described in Exhibit "A" including the Outside Property.

1.2.37. **Public Infrastructure** means those elements of infrastructure that already have been or are planned to be dedicated to the Town as a condition of the approval of a Development Application.

1.2.38. **Residential Dwelling Unit** means, for purposes of calculating Density, a unit constructed on the Property which is intended to be occupied for residential living purposes. Calculation of equivalencies of Residential Dwelling Units shall be as specified in Town's Vested Laws.

1.2.39. **Ridgeline Map** means a map attached as Exhibit "F" illustrating the ridgelines on the Property.

1.2.40. **RSPA Zoning Map** means the application of the RSPA zoning to individual Density Pods approved by the Town on March __, 2010 a copy of which is attached as Exhibit "B".

1.2.41. **Subdeveloper** means an entity not "related" (as defined by Internal Revenue Service regulations) to Master Developer which purchases a Parcel for development.

1.2.42. **Subdivision** means the division of any portion of the Project into a subdivision pursuant to State Law and/or the Zoning Ordinance.

1.2.43. **Subdivision Application** means the application to create a Subdivision.

1.2.44. **Substantial Completion** means a point in the progress of a construction project where the work has reached the point that it is sufficiently complete such that any remaining work will not interfere with the intended use or occupancy of the project. For work to be substantially complete it is not required that the work be 100% complete.

1.2.45. **Town** means the Town of Hideout, a political subdivision of the State of Utah.

1.2.46. **Town Consultants** means those outside consultants employed by the Town in various specialized disciplines such as traffic, hydrology or drainage for reviewing certain aspects of the development of the Project.

1.2.47. **Town's Future Laws** means the ordinances, policies, standards, procedures and processing fee schedules of the Town which may be in effect as of a particular time in the future when a Development Application is submitted for a part of the Project and which may or may not be applicable to the Development Application depending upon the provisions of this MDA.

1.2.48. **Town's Vested Laws** means the ordinances, policies, standards and procedures of the Town in effect as of the date of this MDA, a digital copy of which is attached as Exhibit "D".

1.2.49. **Zone** means the Town's RSPA zoning district.

1.2.50. **Zoning Ordinance** means the Town's Land Use and Development Ordinance adopted pursuant to the Act that was in effect as of the date of this MDA as a part of the Town's Vested Laws.

2. **Effect of MDA**. This MDA shall be the sole agreement between the parties related to the Project and the Property and shall supersede and novate the Prior Agreement which is hereby declared to be null and void.

3. **Development of the Project.**

3.1. **Compliance with the RSPA Zoning Map and this MDA.** Development of the Project shall be in accordance with the Town's Vested Laws, the Town's Future Laws (to the extent that these are applicable as otherwise specified in this MDA), the Zoning, the RSPA Zoning Map and this MDA.

3.2. **Addition of the Outside Property.** The parties acknowledge that the Outside Property has been included in the calculation of the Maximum Residential Units. Master Developer may use any portions of the Maximum Residential Units on the Outside Property pursuant to RSPA Zoning Map if the Outside Property is annexed into the Town. If the Outside Property is developed by Master Developer other than under the jurisdiction of the Town then any such units shall be deducted from the Maximum Residential Units being developed within the Town.

3.3. **Project Maximum Density.** At Buildout of the Project, Master Developer shall be entitled to have developed the Maximum Residential Units and to have developed the other Intended Uses, including the Commercial Uses as specified in the RSPA Zoning Map.

3.4. **Parcels Intended Uses and Densities.** Intended Uses and Densities for each Parcel are generally shown on the RSPA Zoning Map.

3.5. **Use of Density.** Master Developer may use any of the Maximum Residential Units in the development of any Subdivision so long as the density requested in the proposed Development Application is no greater than the maximum density allowed by the Zone and the RSPA Zoning Map for the proposed Subdivision.

3.6. **Accounting for Density for Parcels Developed by Master Developer.** At the recordation of a Final Plat, Commercial Site Plan allowing for residential uses or other approved and recorded instrument for any Parcel(s) developed by Master Developer, Master Developer shall provide the Town a Development Report showing any Density used with the Parcel(s) and the Density remaining with Master Developer and for the remaining Project.

3.7. **Accounting for Density for Parcels Sold to Subdevelopers.** Any Parcel sold by Master Developer to a Subdeveloper shall include the transfer of a specified portion of the Maximum Residential Units and, for any non-residential use, shall specify the amount and type of any such other use sold with the Parcel At the recordation of a Final Plat or other document of conveyance for any Parcel sold to a Subdeveloper, Master Developer shall provide the Town a Sub-Development Report showing the ownership of the Parcel(s) sold, the portion of the Maximum Residential Units and/or other type of use

transferred with the Parcel(s), the amount of the Maximum Residential Units remaining with Master Developer and any material effects of the sale on the General Plan.

3.7.1. Return of Unused Density. If any portion of the Maximum Residential Units transferred to a Subdeveloper are unused by the Subdeveloper at the time the Parcels transferred with such Density receives approval for a Development Application for the final portion of such transferred Parcels, the unused portion of the transferred Maximum Residential Units shall automatically revert back to Master Developer and the Master Developer shall file with the Town a Development Report.

4. **Zoning and Vested Rights.**

4.1. **Current Zoning and RSPA Zoning Map .** The Project is currently zoned RSPA and the Town has approved the RSPA Zoning Map .

4.2. **Vested Rights Granted by Approval of this MDA.** To the maximum extent permissible under the laws of Utah and the United States and at equity, the Town and Master Developer intend that this MDA grants Master Developer all rights to develop the Project in fulfillment of this MDA, the Town's Vested Laws and the RSPA Zoning Map without modification or interference by the Town except as specifically provided herein. The Parties intend that the rights granted to Master Developer under this MDA are contractual and also those rights that exist under statute, common law and at equity. The parties specifically intend that this MDA and the RSPA Zoning Map grant to Master Developer "vested rights" as that term is construed in Utah's common law and pursuant to Utah Code Ann. § 10-9a-509 (2009).

4.3. **Exceptions.** The restrictions on the applicability of the Town's Future Laws to the Project as specified in Section 4.2 are subject to only the following exceptions:

4.3.1. Master Developer Agreement. Town's Future Laws that Master Developer agrees in writing to the application thereof to the Project;

4.3.2. State and Federal Compliance. Town's Future Laws which are generally applicable to all properties in the Town and which are required to comply with State and Federal laws and regulations affecting the Project;

4.3.3. Codes. Town's Future Laws that are updates or amendments to existing building, plumbing, mechanical, electrical, dangerous buildings, drainage, or similar construction or safety related codes, such as the International Building Code, the APWA Specifications, AAHSTO Standards, the Manual of Uniform Traffic Control Devices or similar standards that are generated by a nationally or statewide recognized construction/safety organization, or by the State or Federal governments and are required to meet legitimate concerns related to public health, safety or welfare;

4.3.4. Taxes. Taxes, or modifications thereto, so long as such taxes are lawfully imposed and charged uniformly by the Town to all properties, applications, persons and entities similarly situated; or,

4.3.5. Fees. Changes to the amounts of fees (but not changes to the times provided in the Town's Vested Laws for the imposition or collection of such fees) for the processing of Development Applications that are generally applicable to all development within the Town (or a portion of the Town as specified in the lawfully adopted fee schedule) and which are adopted pursuant to State law.

4.3.6. Compelling, Countervailing Interest. Laws, rules or regulations that the Town's land use authority finds, on the record, are necessary to avoid jeopardizing a

compelling, countervailing public interest pursuant to Utah Code Ann. § 10-9a-509(1)(a)(i) (2009).

5. **Term of Agreement.** The term of this MDA shall be until December 31, 2035. If as of that date Master Developer has not been declared to be in default as provided in Section 20, or if any such declared default is not being cured as provided therein, then this MDA shall be automatically extended until December 31, 2040, and, thereafter, for up to two (2) additional periods of five (5) years each. This MDA shall also terminate automatically at Buildout.

6. **Previously Approved Phases and Previously Constructed Improvements.**

6.1. **Previously Approved Phases.** The Previously Approved Phases are deemed by the Town to have completed those stages of approval as specified in Exhibit "D".

6.2. **Previously Constructed Improvements.** The Previously Constructed Improvements are hereby accepted as complete by the Town and all security held by the Town for such completion is hereby released.

7. **Approval Processes for Development Applications.**

7.1. **Phasing.** The Town acknowledges that Master Developer, assignees of Master Developer, and/or Subdevelopers who have purchased Parcels of the Property may submit multiple applications from time-to-time to develop and/or construct portions of the Project in phases.

7.2. Town's Cooperation in Processing Development Applications. The Town shall cooperate reasonably in promptly and fairly processing Development Applications for the Project.

7.3. Town Acceptance of Completeness of Development Application.

7.3.1. Initial Review. The Administrator shall have thirty (30) calendar days after

submittal of a Development Application to inform the Applicant of whether the Administrator considers the Development Application to be complete.

7.3.2. Extension. The Administrator may extend this initial review period by a written Notice specifying the extraordinary reasons therefore for an additional twenty (20) days.

7.3.3. Deemed Complete. If the Administrator does not notify Applicant in writing of any additional information required to complete the Development Application the Development Application shall thereafter be deemed complete.

7.3.4. Additional Information. If the Administrator determines the Development Application is not complete as submitted the Administrator shall notify Developer in writing within the time specified above, specifying in detail which portions are not complete, what required information is not contained or in what other specific details the Development Application is alleged not to be complete. If the Administrator does not notify Applicant in writing within fifteen (15) calendar days after submittal of the required additional information necessary to complete the Development Application the Development Application shall be deemed complete. If the Administrator believes that the Development Application is still not complete Developer can either continue to provide additional information requested by the Administrator or elect to have the Development Application presented to the appropriate body irrespective of any alleged incompleteness.

7.4. **Planning Commission Review of Development Applications.**

7.4.1. Two Hearings. Unless Applicant consents to a different schedule, all aspects of a Development Application subject to review by the Planning Commission shall be considered by the Planning Commission at nor more than two public hearings.

7.4.2. Hearing Schedule. Unless Applicant consents to a different schedule, the first public hearing shall be scheduled no later than the next regularly scheduled public hearing for which any legally required notice may be given after the Development Application is deemed complete or submitted over any objection to alleged incompleteness. Any second public hearing shall be scheduled no later than the next regularly scheduled public hearing for which any legally required notice may be given after the Applicant requests it be scheduled. The Planning Commission may not refuse to consider the Development Application on the basis of any alleged incompleteness and may not table or otherwise extend its consideration of the Development Application beyond the second allowed hearing without the consent of the Applicant.

7.4.3. Recommendation. At the conclusion of public hearing(s) the Planning Commission shall recommend by majority vote whether the Development Application complies with the Development Agreement. If the Planning Commission fails to make a recommendation it shall be presumed to have recommended approval. The Planning Commission's decision shall be only a recommendation and shall not have any binding effect on the consideration of the Development Application by the Town Council.

7.5. **Town Council Review of Development Applications.**

7.5.1. Consideration by the Town Council. After the Planning Commission has made or been deemed to have made its recommendation of the Development Application the Town Council shall consider the Development Application.

7.5.2. Hearing Schedule. Unless otherwise agreed to by Applicant, the Town Council shall do so at the next regularly scheduled hearing for which any required notice may be lawfully given. Unless otherwise agreed to by Applicant, any subsequent consideration of the same Development Application shall also be at the next regularly scheduled meeting of the body for which any required notice may be lawfully given. Developer shall respond in good faith to any requests for additional information by the Town Council during its consideration of any Development Application.

7.5.3. Decision of the Town Council. At the conclusion of the Town Council's second meeting considering any Development Application, or at any time during any subsequent meeting if agreed to by Developer, Developer may require the Town Council to make a final determination on the granting or denial of the Development Application.

7.6. **Processing Under Town's Vested Laws.** Development Applications shall be approved by the Town if they comply with the Town's Vested Laws and conform to this MDA and the RSPA Zoning Map.

7.7. **Outsourcing of Processing of Development Applications.** Within fifteen (15) business days after receipt of a Development Application and upon the request of Master Developer will confer and determine whether the Master Developer or a Subdeveloper wishes the Town to Outsource the review of any aspect of the Development Application

to insure that it is processed on a timely basis. If Master Developer or a Subdeveloper determines that Outsourcing is appropriate then the Town shall promptly estimate the reasonably anticipated differential cost of Outsourcing in the manner selected by the Master Developer of Subdeveloper in good faith consultation with the Master Developer or Subdeveloper (either overtime to Town employees or the hiring of a Town Consultant). If the Master Developer or a Subdeveloper notifies the Town that it desires to proceed with the Outsourcing based on the Town's estimate of costs then the Master Developer or Subdeveloper shall deposit in advance with the Town the estimated differential cost and the Town shall then promptly precede with the Outsourced work. Upon completion of the Outsourcing services and the provision by the Town of an invoice (with such reasonable supporting documentation as may be requested by Master Developer or Subdeveloper) for the actual differential cost (whether by way of paying a Town Consultant or paying overtime to Town employees) of Outsourcing, Master Developer or the Subdeveloper shall, within ten (10) business days pay or receive credit (as the case may be) for any difference between the estimated differential cost deposited for the Outsourcing and the actual cost differential.

7.8. **Non-Town Agency Reviews.** No Non-Town Agency review of any Development Application shall be required unless such a review is specifically provided for in the Town's Vested Laws or if required by State or Federal law. If any aspect or a portion of a Development Application is governed exclusively by a Non-Town Agency an approval for these aspects does not need to be submitted by Applicant for review by any body or agency of the Town. The Applicant shall timely notify the Town of any such submittals and promptly provide the Town with a copy of the requested submissions. The Town

may only grant final approval for any Development Application subject to compliance by Applicant with any conditions required for such Non-Town Agency's approval.

7.9. **Acceptance of Certifications Required for Development Applications.** Any Development Application requiring the signature, endorsement, or certification and/or stamping by a person holding a license or professional certification required by the State of Utah in a particular discipline shall be so signed, endorsed, certified or stamped signifying that the contents of the Development Application comply with the applicable regulatory standards of the Town. The Development Application shall thus generally be deemed to meet the specific standards which are the subject of the opinion or certification without further objection or required review by the Town or any other agency of the Town. It is not the intent of this Section to preclude the normal process of the Town's "redlining", commenting on or suggesting alternatives to the proposed designs or specifications in the Development Application. Generally, the Town should endeavor to make all of its redlines, comments or suggestions at the time of the first review of the Development Application unless and changes to the Development Application raise new issues that need to be addressed.

7.10. **Expert Review of Certifications Required for Development Applications.** If the Town, notwithstanding such a certification by Applicant's experts, subjects the Development Application to a review by Town Consultants, the Town shall bear the costs of such review if the Town Consultants determine that the Applicant's expert certification was materially correct and that the Town's requiring a review of the certification in the Development Application was unreasonable and not made in good faith. If the Town Consultants determine that the Town's requirement of a review was reasonable and made

in good faith then payment of the reasonable and actual costs of the Town Consultants' review shall be the responsibility of Applicant.

7.10.1. Selection of Town Consultants for Review of Certifications Required for Development Applications. The Town Consultant undertaking any review by the Town required or permitted by this MDA or the Ordinance shall be selected from a list generated by the Town for each such Town review pursuant to a "request for proposal" process or as otherwise allowed by Town ordinances or regulations. Applicant may, in its sole discretion, strike from the list of qualified proposers any of such proposed consultants so long as at least three (3) qualified proposers remain for selection. The anticipated cost and timeliness of such review may be a factor in choosing the expert.

7.11. **Independent Technical Analyses for Development Applications.** If the Town needs technical expertise beyond the Town's internal resources to determine impacts of a Development Application such as for structures, bridges, water tanks, and other similar matters which are not required by the Town's Vested Laws to be certified by such experts as part of a Development Application, the Town may engage such experts as Town Consultants under the processes specified in Section 7.10.1 with the actual and reasonable costs being the responsibility of Applicant. If the Town needs any other technical expertise other than as specified above, under extraordinary circumstances specified in writing by the Town, the Town may engage such experts as Town Consultants under the processes in Section 7.10.1 with the actual and reasonable costs being the responsibility of Applicant.

7.12. **Town Denial of a Development Application.** If the Town denies a Development

Application the Town shall provide a written determination advising the Applicant of the reasons for denial including specifying the reasons the Town believes that the Development Application is not consistent with this MDA, the RSPA Zoning Map and/or the Town's Vested Laws (or, if applicable, the Town's Future Laws).

7.13. **Meet and Confer regarding Development Application Denials.** The Town and Applicant shall meet within fifteen (15) business days of any Denial to resolve the issues specified in the Denial of a Development Application.

7.14. **Town Denials of Development Applications Based on Denials from Non-Town Agencies.** If the Town's denial of a Development Application is based on the denial of the Development Application by a Non-Town Agency, Master Developer shall appeal any such denial through the appropriate procedures for such a decision and not through the processes specified below.

7.15. **Mediation of Development Application Denials.**

7.15.1. Issues Subject to Mediation. Issues resulting from the Town's Denial of a Development Application that are not subject to arbitration provided in Section 7.16 shall be mediated.

7.15.2. Mediation Process. If the Town and Applicant are unable to resolve a disagreement subject to mediation, the parties shall attempt within ten (10) business days to appoint a mutually acceptable mediator with knowledge of the issue in dispute. If the parties are unable to agree on a single acceptable mediator they shall each, within ten (10) business days, appoint their own representative. These two representatives shall, between them, choose the single mediator. Applicant shall pay the fees of the chosen mediator. The chosen mediator shall within fifteen (15)

business days, review the positions of the parties regarding the mediation issue and promptly attempt to mediate the issue between the parties. If the parties are unable to reach agreement, the mediator shall notify the parties in writing of the resolution that the mediator deems appropriate. The mediator's opinion shall not be binding on the parties.

7.16. **Arbitration of Development Application Objections.**

7.16.1. Issues Subject to Arbitration. Issues regarding the Town's Denial of a Development Application that are subject to resolution by scientific or technical experts such as traffic impacts, water quality impacts, pollution impacts, etc. are subject to arbitration.

7.16.2. Mediation Required Before Arbitration. Prior to any arbitration the parties shall first attempt mediation as specified in Section 7.15.

7.16.3. Arbitration Process. If the Town and Applicant are unable to resolve an issue through mediation, the parties shall attempt within ten (10) business days to appoint a mutually acceptable expert in the professional discipline(s) of the issue in question. If the parties are unable to agree on a single acceptable arbitrator they shall each, within ten (10) business days, appoint their own individual appropriate expert. These two experts shall, between them, choose the single arbitrator. Applicant shall pay the fees of the chosen arbitrator. The chosen arbitrator shall within fifteen (15) business days, review the positions of the parties regarding the arbitration issue and render a decision. The arbitrator shall ask the prevailing party to draft a proposed order for consideration and objection by the other side. Upon adoption by the arbitrator, and consideration of such objections, the arbitrator's decision shall be final and binding

upon both parties. If the arbitrator determines as a part of the decision that the Town's position was not only incorrect but was also maintained unreasonably and not in good faith then the arbitrator may order the Town to pay the arbitrator's fees.

7.17. **Parcel Sales.** The Town acknowledges that the precise location and details of the public improvements, lot layout and design and any other similar item regarding the development of a particular Parcel may not be known at the time of the sale of a Parcel. Master Developer may obtain approval of a Subdivision that does not create any individually developable lots in the Parcel without being subject to any requirement in the Town's Vested Laws to complete or provide security for any Public Infrastructure at the time of such subdivision. The responsibility for completing and providing security for completion of any Public Infrastructure in the Parcel shall be that of the Developer or a Subdeveloper upon a subsequent re-Subdivision of the Parcel that creates individually developable lots.

8. **Application Under Town's Future Laws.** Without waiving any rights granted by this MDA, Master Developer may at any time, choose to submit a Development Application for some or all of the Project under the Town's Future Laws in effect at the time of the Development Application. Any Development Application filed for consideration under the Town's Future Laws shall be governed by all portions of the Town's Future Laws related to the Development Application. The election by Master Developer at any time to submit a Development Application under the Town's Future Laws shall not be construed to prevent Master Developer from relying for other Development Applications on the Town's Vested Laws.

9. **Tax Benefits.** The Town acknowledges that Master Developer may seek and qualify for certain tax benefits by reason of conveying, dedicating, gifting, granting or transferring portions

of the Property to the Town or to a charitable organization for Open Space. Master Developer shall have the sole responsibility to claim and qualify for any tax benefits sought by Master Developer by reason of the foregoing. The Town shall reasonably cooperate with Master Developer to the maximum extent allowable under law to allow Master Developer to take advantage of any such tax benefits.

10. **Public Infrastructure.**

10.1. **Construction by Master Developer.** Master Developer shall have the right and the obligation to construct or cause to be constructed and installed all Public Infrastructure reasonably required and lawfully by the as a condition of approval of the Development Application.

10.2. **Bonding.** If and to the extent required by the Town's Vested Laws security for any Public Infrastructure, is required by the Town it shall provided in a form acceptable to the Town (which may include security based on real property) as specified in the Town's Vested Laws. Partial releases of any such required security shall be made as work progresses based on the Town's Vested Laws.

10.3. **Water.**

10.3.1. Dedication Obligation Not Immediately Created. Master Developer or a Subdeveloper shall not be required to reserve, dedicate or otherwise incur any cost for the provision of water (either culinary or secondary) until the time of the recordation of a Subdivision plat or other instrument giving Master Developer the immediate right to begin construction pursuant to a Development Application.

10.3.2. When dedication required. Upon the recordation of a Subdivision plat or other instrument giving Master Developer or a Subdeveloper the immediate right to

begin construction pursuant to a Development Application then Master Developer or a Subdeveloper shall cause to be dedicated to the Town (or such other entity as may be designated by the Town for providing water service to the Project) the amount of water rights necessary to service the approved Development Application as calculated below. The dedication of the water rights or shares shall be in a form reasonably acceptable to the Town.

10.3.3. Town's Existing Water Rights. If the Town is, at the time specified in Section 10.3.2. already in possession of sufficient water rights to service the Development Application (either from the Town's own acquisition of water rights or from prior dedications by Master Developer or a Subdeveloper) then such dedication shall not be required and the Town shall use the water rights that it already has to service the Development Application.

10.3.4. Calculation of Required Amount of Water. As of the date of the execution of this MDA, the amount of water rights required for certain uses are as follows:

10.3.4.1. .45 acre feet for each 3,000 square feet of usable area in commercial or retail development;

10.3.4.2. .45 acre feet for each Residential Dwelling Unit in a condominium, apartment or townhome development

10.3.4.3. .45 acre feet for single family residential lots.20 acres and smaller; and

10.3.4.4. .76 acre feet for single family residential lots larger than .20 acres.

10.3.5. Adjustments of Required Amounts. The parties acknowledge that studies are now being performed or may be performed in the future that establish that a lower

amount of water is actually required to serve some or all of the uses specified above. At the time that such studies are certified as correct by an appropriately licensed engineer, the amounts of water required as specified in Section 10.3.4 shall be reduced to the amount determined by such certified study. The amount of water required for each use may only be increased if such an increase is required by State law.

10.4. **Roads.** The roads in the Project shall be constructed to the standards specified by the Town as a condition of approval of the Development Application so long as those standards are no more strict than provided in the Town's Vested Laws or the Town's Future Laws allowed pursuant to Section 4.3. The roads in the Project may be retained as private roads by Master Developer or an HOA to be maintained by the HOA or dedicated to the Town at the option of Master Developer.

10.5. **No Additional Off-Site Infrastructure Requirements.** The Town shall not, directly or indirectly, charge the Master Developer, its affiliates or successors, Subdevelopers or the Property any development fees, impact fees, water hookup fees, or any similar fees, charges, assessments or exactions for infrastructure for the development of the Project except as may be otherwise allowed by law.

10.6. **Construction Prior to Completion of Infrastructure.** Anything in the Zoning Ordinance notwithstanding, Master Developer may obtain building permits and/or temporary Certificates of Occupancy for model homes, homes shows, sales offices, construction trailers or similar temporary uses prior to the installation of all infrastructure required to be eventually completed so long as such installation is secured pursuant to the Town's Vested Laws.

10.6.1. Permanent Certificate of Occupancy. No permanent Certificate of Occupancy shall be issued by the Town and no residential occupancy shall be permitted unless all infrastructure (except for landscaping which shall be considered pursuant to Section 11.1) required pursuant to an approved Development Application are installed and Substantially Complete.

11. **Construction Standards and Requirements.**

11.1. **Separate Security for Landscaping.** Security for the completion of those items of landscaping that are weather dependent may be, at the option of Master Developer, by a security instrument acceptable to the Town separate from the security instrument used for the other portion of the public improvements.

11.2. **Building Permits.** No buildings or other structures shall be constructed within the Project without Master Developer and/or a Subdeveloper first obtaining building permits. Master Developer and/or a Subdeveloper may apply for and obtain a grading permit following conceptual approval by the Planning Commission of a Commercial Concept Plan or a Subdivision Concept Plan if Master Developer and/or a Subdeveloper has submitted and received approval of a site grading plan from the Town Engineer.

11.3. **Town and Other Governmental Agency Permits.** Before commencement of construction or development of any buildings, structures or other work or improvements upon any portion of the Project, Master Developer or a Subdeveloper shall, at its expense, secure, or cause to be secured, any and all permits which may be required by the Town or any other governmental entity having jurisdiction over the work. The Town shall reasonably cooperate with the Master Developer or a Subdeveloper in seeking to secure such permits from other governmental entities.

12. **Upsizing/Reimbursements to Master Developer.**

12.1. **"Upsizing".** The Town shall not require Master Developer to "upsize" any future Public Infrastructure (i.e., to construct the infrastructure to a size larger than required to service the Project) unless financial arrangements reasonably acceptable to Master Developer are made to compensate Master Developer for the *pro rata* costs of such upsizing.

12.2. **Building Permit Charges Within the Project for Public Infrastructure.** To the maximum extent allowable at law, the Town shall cause Master Developer to be reimbursed, as a condition precedent to the issuance of any Building Permit for a building within the Project for a *pro rata* share of the Public Infrastructure that was constructed by Master Developer. Such reimbursement shall be made by way of impact fees, connection fees or any other mechanism reasonably selected by the Town such that Master Developer is reasonably reimbursed including a reasonable amount for the cost of financing incurred by Master Developer.

12.3. **Building Permit Charges Outside the Project for Public Infrastructure.** To the maximum extent allowable at law, the Town shall cause Master Developer to be reimbursed, as a condition precedent to the issuance of any Building Permit for any development constructed by a third-party outside of the Project that connects to the Public Infrastructure that was constructed by Master Developer. Such reimbursement shall be made by way of impact fees, connection fees, protection strips or any other mechanism reasonably selected by the Town such that Master Developer is reasonably reimbursed including a reasonable amount for the cost of financing incurred by Master Developer.. The amount of such reimbursement shall calculated on a *pro rata* formula

using a reasonable estimate of the total number of units to be constructed by Master Developer as a percentage of the total number of units that will eventually be using the particular element of Public Infrastructure multiplied by the cost to Master Developer of constructing the particular element of Public Infrastructure.

12.4. **Assessment Areas.** The Town shall, at the request of Master Developer, reasonably and in good faith consider the issuance in the future of requests to create Assessment Areas under State law to provide for the financing of additional Public Infrastructure.

12.5. **Tax Increment.** The Town shall, at the request of Master Developer, reasonably and in good faith consider participating in a "tax increment financing" agreement under State law to provide for the financing of additional Public Infrastructure.

13. **Open Space And Ridgelines.**

13.1. **Open Space.**

13.1.1. Requirement. At Buildout, twenty-five percent (25%) of the Project shall be Open Space. The parties acknowledge that this final Open Space requirement need not be met for the development of any particular Density Pod.

13.1.2. Timing of Open Space Creation. The Development Application approval for each separate Density Pod or portion thereof shall provide that the Applicant shall construct or designate the land required for Open Space that is located within the Density Pod or portion thereof and an amount of Open Space outside the Density Pod that, in the determination of Master Developer, is roughly consistent with achieving the ultimate ratio of Open Space at Buildout.

13.1.3. Calculation. Open Space shall be calculated by the following formula: Open Space Percentage = (T - R - B) ÷ (T - R) x 100 where T = 1305 (the total area of the Property); R = the area of roadways (including sidewalks) in the Project; and B = the amount of land upon which are constructed improvements such as buildings, driveways, parking lots or other areas not left in an open condition (whether landscaped or natural).

13.2. **Ridgelines.** The Ridgeline Map illustrates the areas the Town considers to be Ridgelines and specifies any building restrictions related to such Ridgelines. The Town acknowledges that compliance with the Ridgeline Map satisfies any Ridgeline restrictions in the Zoning Code.

14. **Cable TV/Fiber Optic Service.** Subject to all applicable Federal and State laws, Master Developer may install or cause to be installed underground all conduits and cable service/fiber optic lines within the Project at no expense to the Town. The conduits, cable, lines, connections and lateral connections shall remain the sole and exclusive property of Master Developer or cable/fiber optic provider even though the roadways in which the cable/fiber optic lines conduits, connections and laterals are installed may be dedicated to the Town. Master Developer may contract with any cable TV/fiber optic provider of its own choice and grant an exclusive access and/or easement to such provider to furnish cable TV/fiber optic services for those dwelling units or other uses on the Project, so long as the property is private and not dedicated to the public.

15. **CC&R's.** The Homeowners Association(s) will be responsible for the implementation and enforcement of the CC&R's and the Technical Guidelines. The CC&R's may be amended by the processes specified in the CC&R's without any requirement of approval of such amendments by the Town. Prior to the issuance of any building permits for residential, business,

commercial or recreational use but excluding infrastructure the architectural control subcommittee established by the CC&R's shall certify to the Town that the proposed permit complies with the Technical Guidelines and the CC&R's.

16. **Payment of Fees.** Master Developer and/or a Subdeveloper shall pay to the Town all fees in amounts specified in the Town's Future Laws (but, the timing of the imposition and collection of such fees shall be governed by the Town's Vested Laws).

17. **On-Site Processing of Natural Materials.** Master Developer may use the natural materials located on the Project such as sand, gravel and rock, and may process such natural materials into construction materials such as aggregate, topsoil, concrete or asphalt for use in the construction of infrastructure, homes or other buildings or improvements located in the Project and other locations outside the Project. Master Developer shall make an application for all such uses pursuant to the processes for a conditional use as provided in the Town's Vested Laws.

18. **Provision of Municipal Services.** The Town shall provide all Town services to the Project that it provides from time-to-time to other residents and properties within the Town including, but not limited to, police, fire and other emergency services. Such services shall be provided to the Project at the same levels of services, on the same terms and at the same rates as provided to other residents and properties in the Town.

19. **Future Property Which May be Included in this MDA.** If Master Developer acquires any additional property contiguous to the Property and located within the boundaries of the Town then such future property shall be automatically included within this MDA at the option of Master Developer and this MDA shall be recorded in the chain of title of such property. Any such future property so added to this MDA shall be developed at the same density as provided for the property in the RSPA.

20. **Default.**

20.1. **Notice.** If Master Developer or a Subdeveloper or the Town fails to perform their respective obligations hereunder or to comply with the terms hereof, the party believing that a Default has occurred shall provide Notice to the other party. If the Town believes that the Default has been committed by a Subdeveloper then the Town shall also provide a courtesy copy of the Notice to Master Developer.

20.2. **Contents of the Notice of Default**. The Notice of Default shall:

20.2.1. Specific Claim. Specify the claimed event of Default;

20.2.2. Applicable Provisions. Identify with particularity the provisions of any applicable law, rule, regulation or provision of this MDA that is claimed to be in Default;

20.2.3. Materiality. Identify why the Default is claimed to be material; and

20.2.4. Optional Cure. If the Town chooses, in its discretion, propose a method and time for curing the Default which shall be of no less than sixty (60) days duration.

20.3. **Meet and Confer, Mediation, Arbitration.** Upon the issuance of a Notice of Default the parties shall engage in the "Meet and Confer" and "Mediation" processes specified in Sections 7.13 and 7.15. If the claimed Default is subject to Arbitration as provided in Section 7.16 then the parties shall follow such processes.

20.4. **Remedies.** If the parties are not able to resolve the Default by "Meet and Confer" or by Mediation, and if the Default is not subject to Arbitration then the parties may have the following remedies:

20.4.1. Law and Equity. All rights and remedies available at law and in equity, including, but not limited to, injunctive relief, specific performance and/or damages.

20.4.2. Security. The right to draw on any security posted or provided in connection with the Project and relating to remedying of the particular Default.

20.4.3. Future Approvals. The right to withhold all further reviews, approvals, licenses, building permits and/or other permits for development of the Project in the case of a default by Master Developer, or in the case of a default by a Subdeveloper, development of those Parcels owned by the Subdeveloper until the Default has been cured.

20.5. **Public Meeting.** Before any remedy in Section 20.4 may be imposed by the Town the party allegedly in Default shall be afforded the right to attend a public meeting before the Town Council and address the Town Council regarding the claimed Default.

20.6. **Emergency Defaults.** Anything in this MDA notwithstanding, if the Town Council finds on the record that a default materially impairs a compelling, countervailing interest of the Town and that any delays in imposing such a default would also impairs a compelling, countervailing interest of the Town then the Town may impose the remedies of Section 20.4 without the requirements of Sections 20.5. The Town shall give Notice to the Developer and/or any applicable Subdeveloper of any public meeting at which an emergency default is to be considered and the Developer and/or any applicable Subdeveloper shall be allowed to address the Town Council at that meeting regarding the claimed emergency Default

20.7. **Extended Cure Period.** If any Default cannot be reasonably cured within sixty (60) days then such cure period shall be extended so long as the defaulting party is pursuing a cure with reasonable diligence.

20.8. **Cumulative Rights.** The rights and remedies set forth herein shall be cumulative.

20.9. **Default of Assignee.** A default of any obligations assumed by an assignee shall not be deemed a default of Master Developer.

21. **Notices.** All notices required or permitted under this Amended Development Agreement shall, in addition to any other means of transmission, be given in writing by certified mail and regular mail to the following address:

To the Master Developer:

Mustang Development, L.L.C.
Attn: Robert J. Martino
1741 Sidewinder Dr. Suite 100
Park City, Utah 84060

Bruce R. Baird, Esq.
Bruce R. Baird PC
2150 South 1300 East, Fifth Floor
Salt Lake City, UT 84106

To the Town:

Town of Hideout
Attn: Mayor
10837 North Hideout Trail
Hideout, Utah 84036

21.1. **Effectiveness of Notice.** Except as otherwise provided in this MDA, each Notice shall be effective and shall be deemed delivered on the earlier of:

21.1.1. Hand Delivery. Its actual receipt, if delivered personally, by courier service, or by facsimile provided that a copy of the facsimile Notice is mailed or personally delivered as set forth herein on the same day and the sending party has confirmation of transmission receipt of the Notice).

21.1.2. Electronic Delivery. Its actual receipt if delivered electronically by email provided that a copy of the email is printed out in physical form and mailed or

personally delivered as set forth herein on the same day and the sending party has an electronic receipt of the delivery of the Notice

21.1.3. Mailing. On the day the Notice is postmarked for mailing, postage prepaid, by First Class or Certified United States Mail and actually deposited in or delivered to the United States Mail. Any party may change its address for Notice under this MDA by giving written Notice to the other party in accordance with the provisions of this Section.

22. **Entire Agreement.** This MDA, and all Exhibits thereto, is the entire agreement between the Parties and may not be amended or modified except either as provided herein or by a subsequent written amendment signed by all parties.

23. **Administrative Amendments.**

23.1. **Allowable Administrative Applications:** Modification of the location and/or sizing of the infrastructure for the Project that does not materially change the functionality of the infrastructure.

23.2. **Application to Administrator.** Applications for Administrative Amendments shall be filed with the Administrator

23.3. **Referral by Administrator.** If the Administrator determines for any reason that it would be inappropriate for the Administrator to determine any the Administrative Amendment the Administrator may require the Administrative Amendment to be processed as a Modification Application.

23.4. **Administrator's Review of Administrative Amendment.** The Administrator shall consider and decide upon the Administrative Amendment within a reasonable time.

23.5. **Notification regarding Administrator's Approval.** If the Administrator approves any Administrative Amendment the Administrator shall notify the Town Council in writing of the proposed approval. Unless the Administrator receives a notice pursuant to Section 23.6 requiring that the proposed Administrative Amendment be considered by the Town Council as a Modification Application then approval of the Administrative Amendment by the Administrator shall be conclusively deemed binding on the Town.

23.6. **Town Council Requirement of Modification Application Processing.** Any member of the Town Council may, within ten (10) business days after notification by the Administrator, notify the Administrator that the Administrative Amendment must be processed as a Modification Application.

23.7. **Appeal of Administrator's Denial of Administrative Amendment.** If the Administrator denies any proposed Administrative Amendment the Applicant may process the proposed Administrative Amendment as a Modification Application.

24. **Amendment.** Except for Administrative Amendments, any future amendments to this MDA shall be considered as Modification Applications subject to the following processes.

24.1. **Who may Submit Modification Applications.** Only the Town and Master Developer or an assignee that succeeds to all of the rights and obligations of Master Developer under this MDA (and not including a Subdeveloper) may submit a Modification Application.

24.2. **Modification Application Contents.** Modification Applications shall:

24.2.1. Effected Properties. Identify the property or properties effected by the Modification Application.

24.2.2. Effects. Describe the effect of the Modification Application on the affected portions of the Project.

24.2.3. Other Impacted Jurisdictions. Identify any non-Town agencies potentially having jurisdiction over the Modification Application.

24.2.4. Map. Provide a map of any affected property and all property within three hundred feet (300') showing the present or Intended Use and Density of all such properties.

24.2.5. Fee. Modification Applications shall be accompanied by a fee in an amount reasonably estimated by the Town to cover the costs of processing the Modification Application.

24.3. **Town Cooperation in Processing Modification Applications.** The Town shall cooperate reasonably in promptly and fairly processing Modification Applications.

24.4. **Planning Commission Review of Modification Applications.**

24.4.1. Timing of Review. All aspects of a Modification Application required by law to be reviewed by the Planning Commission shall be considered by the Planning Commission as soon as reasonably possible in light of the nature and/or complexity of the Modification Application.

24.4.2. Recommendation. The Planning Commission's vote on the Modification Application shall be only a recommendation and shall not have any binding effect on the consideration of the Modification Application by the Town Council.

24.5. **Town Council Review of Modification Application.** After the Planning Commission, if required by law, has made or been deemed to have made its

recommendation on the Modification Application the Town Council shall consider the Modification Application.

24.6. **Town Council's Objections to Modification Applications.** If the Town Council objects to the Modification Application, the Town Council shall provide a written determination advising the Applicant of the reasons for denial including specifying the reasons the Town believes that the Modification Application is not consistent with the intent of this MDA, the RSPA Zoning Map and/or the Town's Vested Laws (or, if applicable, the Town's Future Laws).

24.7. **Meet and Confer regarding Modification Applications.** The Town Council and Master Developer shall meet within fourteen (14) calendar days of any objection to resolve the issues presented by the Modification Application and any of the Town Council's objections.

24.8. **Mediation of Town Council's Objections to Modification Applications.** If the Town Council and Master Developer are unable to resolve a dispute regarding a Modification Application, the parties shall attempt within seven (7) days to appoint a mutually acceptable expert in land planning or such other discipline as may be appropriate. If the parties are unable to agree on a single acceptable mediator they shall each, within seven (7) days, appoint their own individual appropriate expert. These two experts shall, between them, choose the single mediator. Master Developer shall pay the fees of the chosen mediator. The chosen mediator shall within fourteen (14) days, review the positions of the parties regarding the mediation issue and promptly attempt to mediate the issue between the parties. If the parties are unable to reach agreement, the mediator

shall notify the parties in writing of the resolution that the mediator deems appropriate. The mediator's opinion shall not be binding on the parties.

25. **Estoppel Certificate.** Upon twenty (20) days prior written request by Master Developer or a Subdeveloper, the Town will execute an estoppel certificate to any third party certifying that Master Developer or a Subdeveloper, as the case may be, at that time is not in default of the terms of this Agreement.

26. **Attorneys Fees.** In addition to any other relief, the prevailing party in any action, whether at law, in equity or by arbitration, to enforce any provision of this MDA shall be entitled to its costs of action including a reasonable attorneys' fee.

27. **Headings.** The captions used in this MDA are for convenience only and a not intended to be substantive provisions or evidences of intent.

28. **No Third Party Rights/No Joint Venture.** This MDA does not create a joint venture relationship, partnership or agency relationship between the Town and Master Developer. Further, the parties do not intend this MDA to create any third-party beneficiary rights. The parties acknowledge that this MDA refers to a private development and that the Town has no interest in, responsibility for or duty to any third parties concerning any improvements to the Property unless the Town has accepted the dedication of such improvements at which time all rights and responsibilities for the dedicated public improvement shall be the Town's.

29. **Assignability.** The rights and responsibilities of Master Developer under this MDA may be assigned in whole or in part by Master Developer with the consent of the Town as provided herein.

29.1. **Sale of Lots.** Master Developer's selling or conveying lots in any approved Subdivision or Parcels to builders, users, or Subdevelopers, shall not be deemed to be an

"assignment" subject to the above-referenced approval by the Town unless specifically designated as such an assignment by the Master Developer.

29.2. **Related Entity.** Master Developer's transfer of all or any part of the Property to any entity "related" to Master Developer (as defined by regulations of the Internal Revenue Service), Master Developer's entry into a joint venture for the development of the Project or Master Developer's pledging of part or all of the Project as security for financing shall also not be deemed to be an "assignment" subject to the above-referenced approval by the Town unless specifically designated as such an assignment by the Master Developer. Master Developer shall give the Town Notice of any event specified in this sub-section within ten (10) days after the event has occurred. Such Notice shall include providing the Town with all necessary contact information for the newly responsible party.

29.3. **Notice.** Master Developer shall give Notice to the Town of any proposed assignment and provide such information regarding the proposed assignee that the Town may reasonably request in making the evaluation permitted under this Section. Such Notice shall include providing the Town with all necessary contact information for the proposed assignee.

29.4. **Time for Objection.** Unless the Town objects in writing within twenty (20) business days the Town shall be deemed to have approved of and consented to the assignment.

29.5. **Partial Assignment.** If any proposed assignment is for less than all of Master Developer's rights and responsibilities then the assignee shall be responsible for the performance of each of the obligations contained in this MDA to which the assignee

succeeds. Upon any such approved partial assignment, Master Developer shall be released from any future obligations as to those obligations which are assigned but shall remain responsible for the performance of any obligations that were not assigned.

29.6. **Denial.** The Town may only withhold its consent if the Town is not reasonably satisfied of the assignees financial ability to perform the obligations of Master Developer proposed to be assigned. Any refusal of the Town to accept an assignment shall be subject to the "Meet and Confer" and "Mediation" processes specified in Sections 7.13 and 7.15. If the refusal is subject to Arbitration as provided in Section 7.16 then the parties shall follow such processes.

29.7. **Assignees Bound by MDA.** Any assignee shall consent in writing to be bound by the assigned terms and conditions of this MDA as a condition precedent to the effectiveness of the assignment.

30. **Binding Effect.** If Master Developer sells or conveys Parcels of lands to Subdevelopers or related parties, the lands so sold and conveyed shall bear the same rights, privileges, Intended Uses, configurations, and Density as applicable to such Parcel and be subject to the same limitations and rights of the Town when owned by Master Developer and as set forth in this MDA without any required approval, review, or consent by the Town except as otherwise provided herein.

31. **No Waiver.** Failure of any party hereto to exercise any right hereunder shall not be deemed a waiver of any such right and shall not affect the right of such party to exercise at some future date any such right or any other right it may have.

32. **Severability.** If any provision of this MDA is held by a court of competent jurisdiction to be invalid for any reason, the parties consider and intend that this MDA shall be deemed

amended to the extent necessary to make it consistent with such decision and the balance of this MDA shall remain in full force and affect.

33. **Force Majeure.** Any prevention, delay or stoppage of the performance of any obligation under this Agreement which is due to strikes, labor disputes, inability to obtain labor, materials, equipment or reasonable substitutes therefor; acts of nature, governmental restrictions, regulations or controls, judicial orders, enemy or hostile government actions, wars, civil commotions, fires or other casualties or other causes beyond the reasonable control of the party obligated to perform hereunder shall excuse performance of the obligation by that party for a period equal to the duration of that prevention, delay or stoppage.

34. **Time is of the Essence.** Time is of the essence to this MDA and every right or responsibility shall be performed within the times specified.

35. **Appointment of Representatives.** To further the commitment of the parties to cooperate in the implementation of this MDA, the Town and Master Developer each shall designate and appoint a representative to act as a liaison between the Town and its various departments and the Master Developer. The initial representative for the Town shall be the Mayor of the Town and the initial representative for Master Developer shall be Bob Martino. The parties may change their designated representatives by Notice. The representatives shall be available at all reasonable times to discuss and review the performance of the parties to this MDA and the development of the Project.

36. **Mutual Drafting.** Each party has participated in negotiating and drafting this MDA and therefore no provision of this MDA shall be construed for or against either party based on which party drafted any particular portion of this MDA.

37. **Applicable Law.** This MDA is entered into in Wasatch County in the State of Utah and

shall be construed in accordance with the laws of the State of Utah irrespective of Utah's choice of law rules.

38. **Venue.** Any action to enforce this MDA shall be brought only in the Fourth District Court for the State of Utah, Wasatch County.

39. **Recordation and Running with the Land.** This MDA shall be recorded in the chain of title for the Project. This MDA shall be deemed to run with the land. The data disk of the Town's Vested Laws, Exhibit "C", shall not be recorded in the chain of title. A secure copy of Exhibit "C" shall be filed with the Town Recorder and each party shall also have an identical copy.

40. **Authority.** The parties to this MDA each warrant that they have all of the necessary authority to execute this MDA. Specifically, on behalf of the Town, the signature of the Mayor of the Town is affixed to this MDA lawfully binding the Town pursuant to Resolution No. 10-5 adopted by the Town on ~~February~~ March 11, 2010.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement by and through their respective, duly authorized representatives as of the day and year first herein above written.

MASTER DEVELOPER
Mustang Development, LLC

By: _____
Its: President

TOWN
Town of Hideout

By: _____,
Its: Mayor

Approved as to form and legality:

_____
Town Attorney

Attest:

_____
Town Recorder

Ent 360737 Bk 1017 Pg 1076

TOWN ACKNOWLEDGMENT

STATE OF UTAH)
:ss.
COUNTY OF WASATCH)

On the 11 day of ~~February~~ March, 2010, personally appeared before me RICHARD H. SPRUNG who being by me duly sworn, did say that he is the Mayor of the Town of Hideout, a political subdivision of the State of Utah, and that said instrument was signed in behalf of the Town by authority of its City Council and said Mayor acknowledged to me that the Town executed the same.

Lucinda J. Lopiccolo
NOTARY PUBLIC

My Commission Expires: 4/28/13

Residing at: Summit County

Notary Public
LUCINDA J. LOPICCOLO
Commission #578702
My Commission Expires
April 28, 2013
State of Utah

DEVELOPER ACKNOWLEDGMENT

STATE OF UTAH)
:ss.
COUNTY OF ~~WASATCH~~ SUMMIT)

On the 11 day of ~~February~~ March, 2010, personally appeared before me Bob Martino, who being by me duly sworn, did say that he is the Manager of Mustang Development, LLC , a Utah limited liability company and that the foregoing instrument was duly authorized by the company at a lawful meeting held by authority of its operating agreement and signed in behalf of said company.

Diann Greer
NOTARY PUBLIC

My Commission Expires: 7-19-12

Residing at: Heber Utah

DIANN GREER
NOTARY PUBLIC-STATE OF UTAH
COMMISSION# 574695
COMM. EXP. 7-19-2012

TABLE OF EXHIBITS

Exhibit "A"	Legal Description of Property
Exhibit "B":	RSPA Zoning Map
Exhibit "C":	Town's Vested Laws
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Ent 360737 Bk 1017 Pg 1078

Exhibit "A"

Parcel B:

Tract No. 1:
The South one-half of Section 9, Township 2 South, Range 5 East, Salt Lake Base and Meridian, **EXCEPTING THEREFROM** the Northeast quarter of the Southwest quarter of said Section 9.

Tract No. 2:
All of Section 16, Township 2 South, Range 5 East, Salt Lake Base and Meridian, lying Northerly and Easterly of the East right-of-way line of the New State Highway 189, as set forth on the Right Of Way Plans of the Utah Department of Transportation, Project No. NF-61(3).

Tract No. 3:
Those portions of Government Lots 4, 5 and 6, of Section 17, Township 2 South, Range 5 East, Salt Lake Base and Meridian, lying Northerly and Easterly of the East right-of-way line of the New State Highway 189, as set forth on the Right Of Way Plans of the Utah Department of Transportation, Project No. NF-61(3).

Parcel C:

Tract No. 1:
Those portions of Government Lots 5 and 6; and the East one-half of the Southwest quarter of Section 17, Township 2 South, Range 5 East, Salt Lake Base and Meridian, lying Southerly and Westerly of the Southwesterly right-of-way line of the New State Highway 189, as set forth on the Right Of Way Plans of the Utah Department of Transportation, Project No. NF-61(3).

EXCEPTING THEREFROM the following described parcel:

A parcel of land in said East one-half of the Southwest quarter and the Southwest quarter of the Southeast quarter of Section 17, more particularly described as follows:

Point of Beginning lies South 88°32'14" West 2400.00 feet along the Section line from the Northeast corner of Section 20, Township 2 South, Range 5 East, said point has U.S.C. and G.S. plane grid coordinates North 839,790.42 feet and East 2,026,661.29 feet; thence South 88°32'14" West 1589.7 feet along said Section line; thence North 00°28'53" East 2666,2 feet along the West line of said East half of the Southwest quarter of Section 17; thence North 89°17'52" East 500.00 feet along the North property line; thence South 22°04'00" East 2839.7 feet to the Point of Beginning

Tract No. 2:
Those portions of the Northeast quarter of Section 20, Township 2 South, Range 5 East, Salt Lake Base and Meridian, lying Southerly and Westerly of the Southwesterly right-of-way line of the New State Highway 189, as set forth on the Right Of Way Plans of the Utah Department of Transportation, Project No. NF-61(3).

EXCEPTING THEREFROM the following described parcel:

Point of Beginning lies South 88°32'14" West 2400.00 feet along the Section line from the Northeast corner of Section 20, Township 2 South, Range 5 East, said point has U.S.C. and G.S. plane grid coordinates North 839,790.42 feet and East 2,026,661.29 feet; thence South 22°04'00" East 2813.20 feet; thence South 88°45'02" West 1290.20 feet along the South line of the Northeast quarter of said Section 20; thence North 00°44'35" West 2628.70 feet along the West line of the Northeast quarter of said Section 20; thence North 88°32'14" East 267.20 feet along said Section line to the Point of Beginning.

Tract No. 3:
Those portions of Government Lot 2; and the Southeast quarter of the Northwest quarter of Section 21, Township 2 South, Range 5 East, Salt Lake Base and Meridian, lying Southerly and Westerly of the Southwesterly right-of-way line of the New State Highway 189, as set forth on the Right Of Way Plans of

the Utah Department of Transportation, Project No. NF-61(3). Ent 360737 Bk 1017 Pg 1079

EXCEPTING THEREFROM any portions lying within the I.X.L. No. 3 Patented Lode Mining Claim M.S. 5554.

UDOT Parcel:
A parcel of land, being part of four tracts of property, situate in Lot 3 of Section 17, the Northeast quarter of the Northeast quarter of Section 20, the Northwest quarter of the Southeast quarter, and Lots 5 and 6 of Section 17, Lot 1 of Section 21, and the Southeast quarter of the Northwest quarter and Lot 2 of Section 21, all in Township 2 South, Range 5 East, Salt Lake Base and Meridian. The boundaries of said parcel of land are described as follows:

Beginning at a point in the new Westerly right of way and limited access line, to be established by this document, at a point 103.65 feet perpendicularly distant Southwesterly from the centerline of an expressway known as Project No. 61, as shown on the official map of said project on file in the office of the Utah Department of Transportation at Engineer Station 268+07.72, said point of beginning is approximately 885.80 feet south 00°45'07" East along the East line of said Section 17 from the East quarter corner of said Section 17, and 978.18 feet West; thence along said new Westerly right of way and limited access line the following 22 courses and distances: (1) South 22°42'13" East 32.62 feet to a point 103.48 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 268+40.34; thence (2) South 06°11'13" East 323.51 feet to a point 193.89 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 271+50.96; thence (3) South 06°25'34" West 292.76 feet to a point 335.12 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 274+07.40; thence (4) South 21°16'33" East 182.64 feet to a point 338.76 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 275+90.01; thence (5) South 83°05'21" East 275.30 feet to a point 98.75 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 277+24.85; thence (6) South 22°43'23" East 96.41 feet to a point 98.23 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 278+21.26; thence (7) South 44°38'00" West 18.03 feet to a point 114.83 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 278+21.26; thence (8) South 13°49'06" East 265.16 feet to a point 154.47 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 280+90.47; thence (9) South 28°54'26" East 298.35 feet to a point 120.75 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 283+86.91; thence (10) South 22°01'59" East 608.92 feet to a point 124.82 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 289+95.82; thence (11) South 78°20'34" East 18.03 feet to a point 109.89 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 290+05.92; thence (12) South 22°21'39" East 36.13 feet to a point 109.93 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 290+42.05; thence (13) South 13°41'49" West 228.59 feet to a point 244.96 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 292+24.67; thence (14) South 05°54'44" East 45.00 feet to a point 258.26 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 292+65.73; thence (15) South 40°11'36" East 64.14 feet to a point 240.09 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 293+23.54; thence (16) South 72°25'46" East 44.92 feet to a point 206.72 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 293+51.60; thence (17) South 53°27'17" East 180.48 feet to a point 124.68 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 295+02.13; thence (18) South 22°21'39" East 124.96 feet to a point 140,75 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 296+19.28; thence (19) South 43°21'07" East 711.65 feet to a point 94.75 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 302+97.24; thence (20) South 46°03'51" East 262.54 feet to a point 118.68 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 305+47.18; thence (21) South 54°25'19" East 773.38 feet to a point 239.55 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 312+58.76; thence (22) South 35°37'34" West 31.97 feet to a point in the existing Westerly right of way and limited access line to be abandoned by this document; thence along said existing Westerly right of way and limited access line the following 11 courses and distances: (1) North 54°22'27" West 774.88 feet; thence (2) Northwesterly 604.29 feet along the arc of a 2441.831 foot radius curve to the right (Note: Chord to said curve bears North 47°17'04" West for a distance of 602.75 feet); thence (3) North 40°`11'42" West 780.28 feet; thence (4) North 05°54'44" West 281.60 feet; thence (5) North 22°25'00" West 1200.00 feet; thence (6) North 61°04'35" West 256.12 feet; thence (7) North 26°59'26" West 250.80 feet; thence (8) North 00°36'55" West 592.37 feet; thence (9) North 22°25'00" West 1015.91 feet; thence (10) North 36°58'53" West 297.98 feet; thence (11) North 29°22'04" West 666.03 feet; thence along said new Westerly right of way and limited access line the following 8 courses and distances: (1) North

60°37'57" East 64.87 feet to a point 118.46 feet perpendicularly; distant Southwesterly from said centerline opposite Engineer Station 247+79.23; thence (2) South 28°10'16" East 506.98 feet to a point 171.90 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 253+11.09; thence (3) South 32°19'31" East 241.47 feet to a point 146.77 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 255+64.87; thence (4) South 37°42'30" East 203.18 feet to a point 95.17 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 257+64.95; thence (5) South 21°48'48" East 386.03 feet to a point 99.24 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 261+50.98; thence (6) South 18°09'19" East 322.88 feet to a point 123.23 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 264+72.97; thence (7) South 23°12'59" East 324.85 feet to a point 118.69 feet perpendicularly distant Southwesterly from said centerline opposite Engineer Station 267+97.79; thence (8) South 78°58'37" East 18.03 feet to the point of Beginning.

Wahl Parcel
A parcel of land located in the Southeast quarter of the Northwest quarter of Section 17, Township 2 South Range 5 East, Salt Lake Base and Meridian, more particularly described as follows:

Beginning at a point South 89°33'19" West 3996.525 feet and South 0°15'12" West 1759.20 feet from the Northeast corner of Section 17, Township 2 South Range 5 East, Salt Lake Base and Meridian; and running thence North 89°23'57" East 1112.85 feet; thence South 0°05'38" West 875.12 feet to the center section line; thence South 89°19'16" West along said center section line 1115.31 feet to the West line of the East one-half of the Northwest quarter of said Section 17; thence North 0°15'12" East along said West line 876.67 feet to the point of beginning.

Salt Lake Exchange/Shoreline Parcel
A parcel of land located in the Southwest quarter of the Northeast quarter and in the Southeast quarter of the Northwest quarter of Section 17, Township 2 South, Range 5 East, Salt Lake Base and Meridian, more particularly described as follows:

BEGINNING at a point South 89°33'19" West 1778.805 feet and South 0°03'56" East 1753.04 feet from the Northeast corner of Section 17, Township 2 South Range 5 East, Salt Lake Base and Meridian; and running thence South 0°03'56" East 873.57 feet to the center of section line; thence South 89°19'16" West along said center section line 1117.16 feet; thence North 0°05'38" East 875.12 feet; thence North 89°23'57" East 1114.71 feet to the point of BEGINNING.

Less and Excepting:

A Parcel of land in fee for an expressway known as Project No. NF-61, being part of an entire tract of property, situate in Lot Three (3) of Section Seventeen (17) Township Two (2) South, Range Five (5) East, Salt Lake Base and Meridian, Utah, more particularly described as follows:

Beginning at the Northeast corner of said entire tract, which point is 446.11 feet South 89°17'52" West (highway bearing) and 873.32 feet North 0°32'35" East (highway bearing) from the Southeast corner of said Lot 3; thence South 89°23'57" West (which equals highway bearing South 89°23'00" West) 124.71 feet along the North boundary line of said entire tract; thence South 29°22'04" East 250.05 feet to the East boundary line of said entire tract; thence North 0°03'56" West (North 0°32'35" East highway bearing) 219.27 feet along said East boundary line to the point of beginning as shown on the official map of said project on file in the office of the Utah Department of Transportation.

BOR Parcel:
A parcel of land located in the Southwest corner of Lot 1, Section 21, Township 2 South, Range 5 East, Salt Lake Base and Meridian, and being more particularly described as follows:

Commencing at a point that lies South 00°05'40" East 793.89 feet from the Northwest corner of said Section 21; thence running South 40°11'42" East 570.29 feet; thence along a regular curve to the left, having a radius of 2,441.83 feet, and having a length of 93.06 feet; thence North 89°52'57" West 428.63 feet to the Southwest corner of Lot 1; thence North 00°05'40" West 504.66 feet to the point of beginning.

Excepting From All of the above described property, any portions lying within Summit County, Utah.

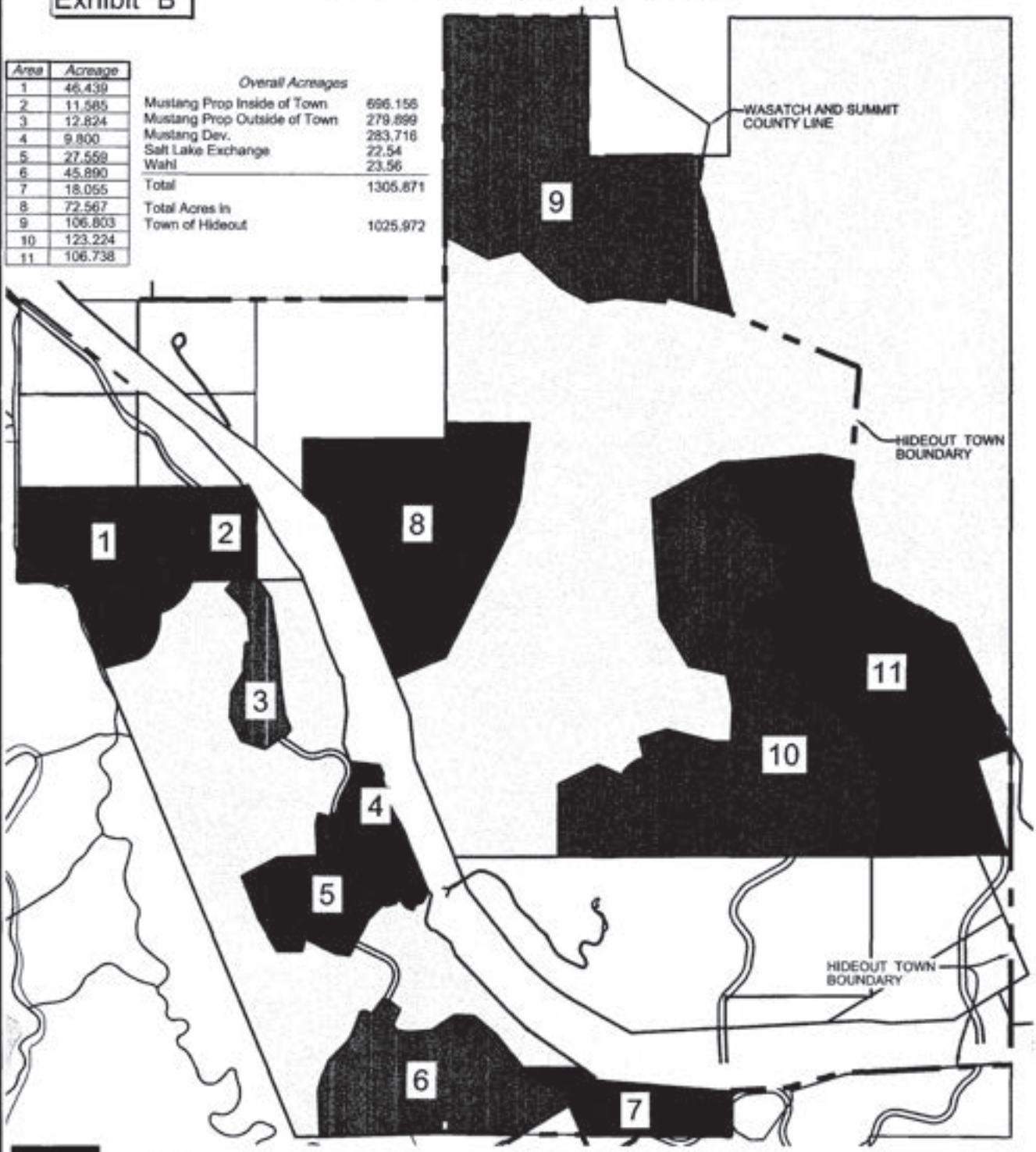
RSPA Zoning Map - Density Pod Areas MASTER PLAN

Exhibit "B"

Area	Acreage
1	46.439
2	11.585
3	12.824
4	9.800
5	27.559
6	45.890
7	18.055
8	72.567
9	106.803
10	123.224
11	106.738

Overall Acreages

Mustang Prop Inside of Town	696.156
Mustang Prop Outside of Town	279.899
Mustang Dev.	283.716
Salt Lake Exchange	22.54
Wahl	23.56
Total	1305.871
Total Acres in Town of Hideout	1025.972



February 10, 2010

Ent 360737 Bk 1017 Pg 1082

Exhibit "C"

The Complete Town of Hideout Utah Code Current March 18, 2009.

Ent 360737 Bk 1017 Pg 1083

Exhibit "D"

Area/Phase	Approvals	Platting
Silver Sky		
Phase 5a *	Final	Recorded Plat
Phase 5b *	Final	No Record Plat
Reflection Ridge		
Phase 8	Final	Recorded Plat
Overlook Village		
Phase 1	Final	Recorded Plat
Glistening Ridge		
Phase 2 & 4	Final	Recorded Plat
Shoreline Village		
Multi-Family	Prelim on old layout	No Record Plat
Soaring Hawk *		
	Final	No Record Plat

Exhibit "E"

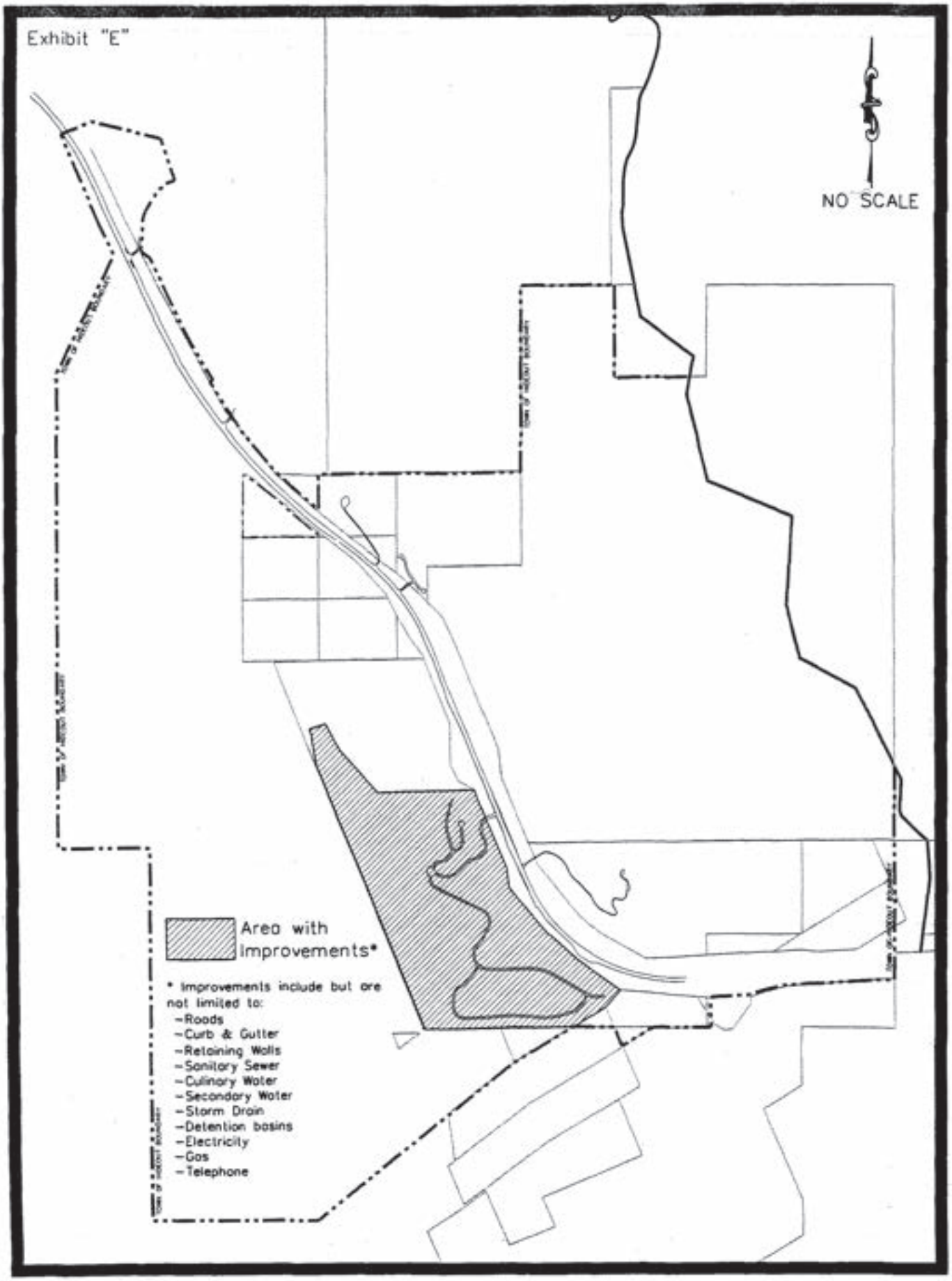
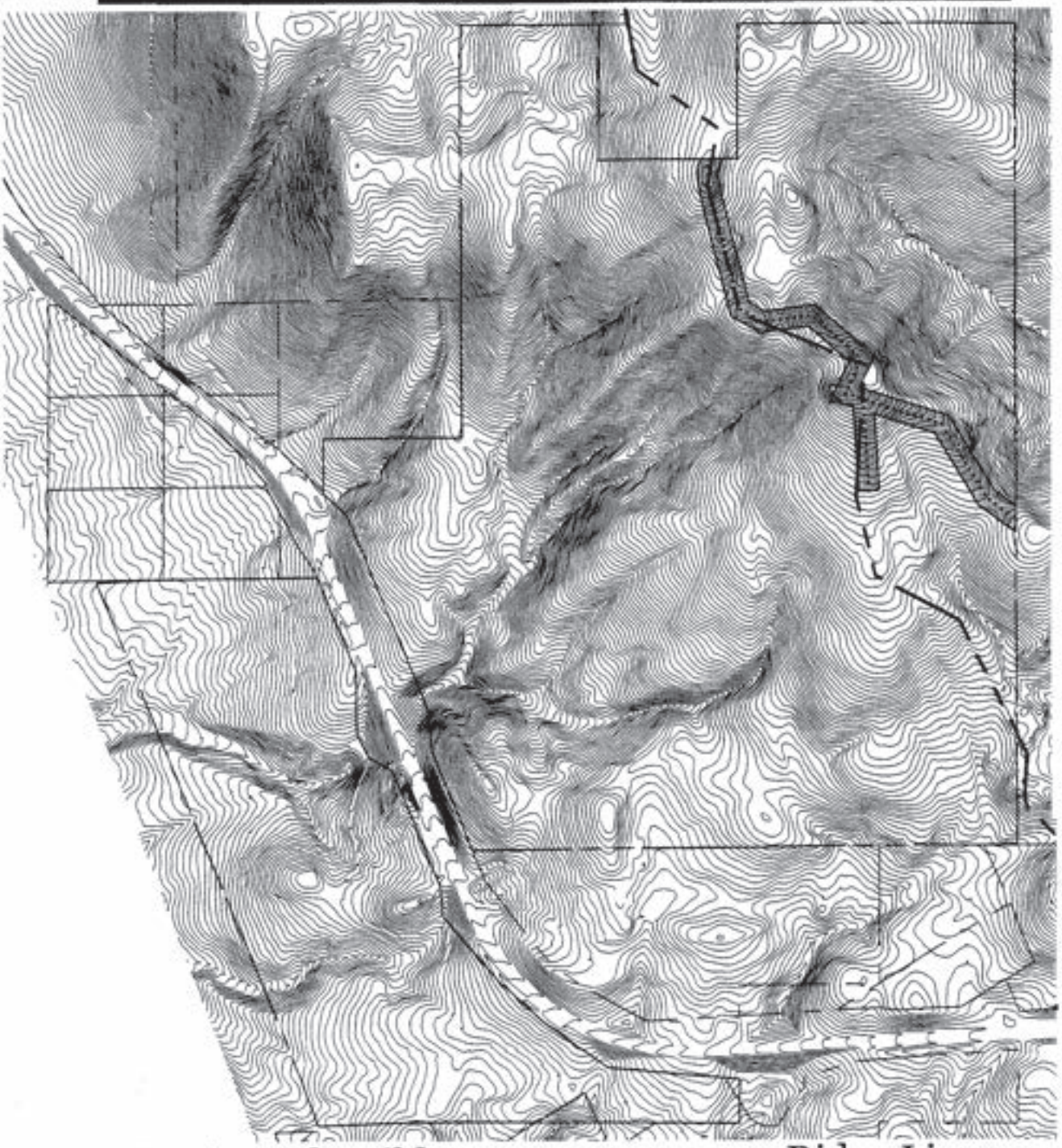

NO SCALE
Area with Improvements*
* Improvements include but are not limited to:
-Roads
-Curb & Gutter
-Retaining Walls
-Sanitary Sewer
-Culinary Water
-Secondary Water
-Storm Drain
-Detention basins
-Electricity
-Gas
-Telephone

Exhibit "F"

Primary Ridge Line



Limited Build Zone

(100' Each Side of the Ridge Line)
No Vertical Structures Allowed
Surface Improvements Permitted
- -Roads
- -Landscaping
- -Trails
- -Other Unobtrusive Improvements

Ridge Line

Ent 360737 Bk 1017 Pg 1086

WASATCH COUNTY TAX SERIAL NUMBERS

OHI-0013
OHI-0016
OHI-0016-1
OHI-0016-2
OHI-0002
OHI-0003
OHI-0020
OHI-0020-1
OHI-0021
OHI-0023
OHI-0023-1
OHI-0024
OHI-0025
OHI-0028
OHI-0029
OHI-0030
OHI-0032
OHI-0033
OHI-0036
OHI-0039
OHI-0042
OHI-0043
OHI-0047

OHK-00C1
OHK-00C2
OHK-00C3
OHK-00C4
OHK-00C5

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OHK-80R6
OHK-80PN

Appendix F: CN and ToC Calculations

DOWNHILL LOTS	1/8 ACRE (TOWN HOUSES) 65% Impervious		
Weighted CN Value			
Surface Type	*Area (ac)*	*"C" Value*	*C*A*
A	0.00	77	0.00
B	0.00	85	0.00
C	100.00	90	9,000.00
D	0.00	92	0.00
Totals	100.00		9,000.00
Weighted CN Value		**90.00**	

UPHILL LOTS	1/6 ACRE (BETWEEN 1/8 AND 1/4) 52% Impervious		
Weighted CN Value			
Surface Type	*Area (ac)*	*"C" Value*	*C*A*
A	0.00	69	0.00
B	0.00	80	0.00
C	100.00	87	8,650.00
D	0.00	90	0.00
Totals	100.00		8,650.00
Weighted CN Value		**86.50**	

Roadway	Roadway		
Weighted CN Value			
Surface Type	*Area (ac)*	*"C" Value*	*C*A*
A	0.00	98	0.00
B	0.00	98	0.00
C	100.00	98	9,800.00
D	0.00	98	0.00
Totals	100.00		9,800.00
Weighted CN Value		**98.00**	

EXISTING CONDITIONS	Sagebrush (W/ Grass Understory) Poor		
Weighted CN Value			
Surface Type	*Area (ac)*	*"C" Value*	*C*A*
A	0.00	0	0.00
B	0.00	67	0.00
C	65.40	80	5,232.00
D	34.60	85	2,941.00
Totals	100.00		8,173.00
Weighted CN Value		**81.73**	

NOTE:

1. Most uphill townhome lots will include the openspace behind it as runoff. The typical 1/8 acre cn distribution will be too conservative. 1/4 acre seems to liberal, so a middle ground was used in order to accurately dipict these areas.

UPHILL LOTS		
Road Slope		0.50%
2 yr 24 hr storm		1.5
n-value		0.325
L_1	120	ft
S	2.00%	
L_2	400	ft
V_2	1.44	fps
L_3	0	ft
V_3	3	fps
T_1	0.51	hr
T_2	0.08	hr
T_3	0.00	hr
T_t	0.59	hr
T_t	**35.37**	**min**

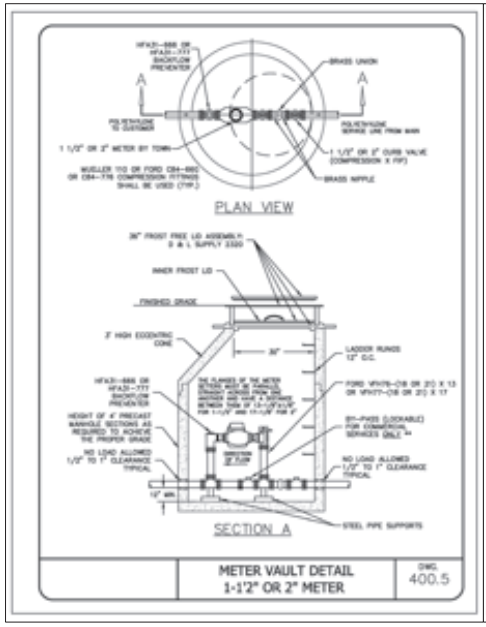
DOWNHILL LOTS		
Road Slope		0.50%
2 yr 24 hr storm		1.5
n-value		0.325
L_1	60	ft
S	2.00%	
L_2	400	ft
V_2	1.44	fps
L_3	0	ft
V_3	3	fps
T_1	0.29	hr
T_2	0.08	hr
T_3	0.00	hr
T_t	0.37	hr
T_t	**22.29**	**min**

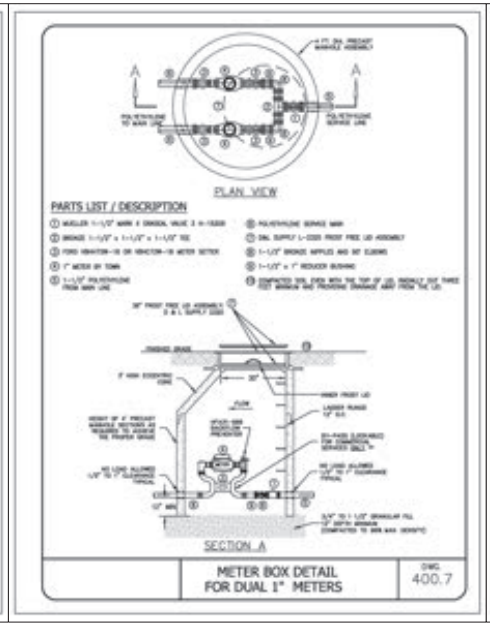
EXISTING CONDITIONS		
Average slope		10.00%
2 yr 24 hr storm		1.5
n-value		0.325
L_1	500	ft
S	10.00%	
L_2	2400	ft
V_2	6.43	fps
L_3	0	ft
V_3	3	fps
T_1	0.84	hr
T_2	0.10	hr
T_3	0.00	hr
T_t	0.95	hr
T_t	**56.79**	**min**

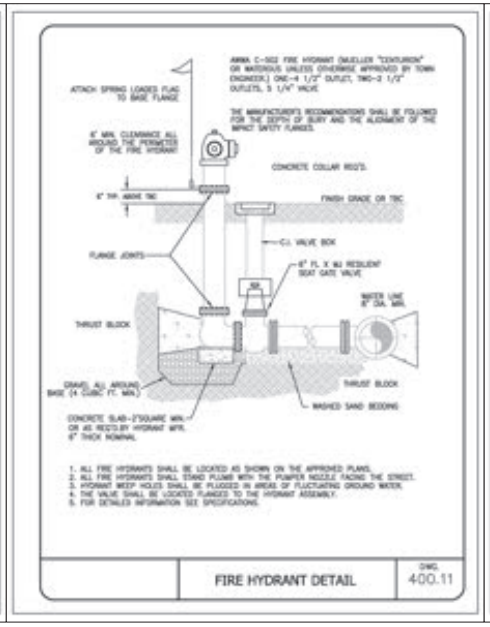
Notes:
Roadway ToC is assumed to be 15 minutes

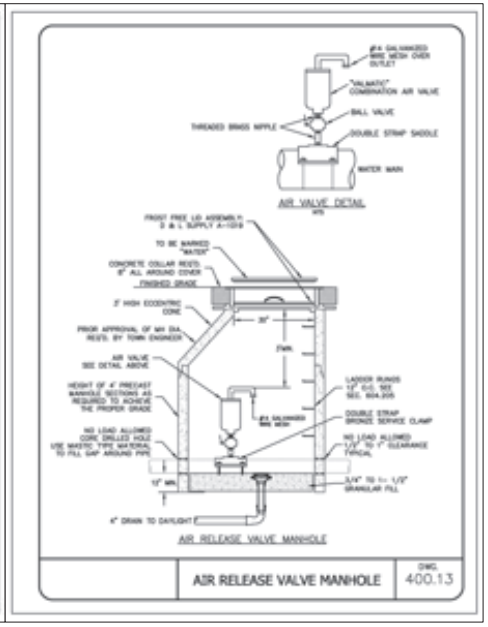
Appendix G: Ph. 1 and Ph. 3 SD reports (From Others)

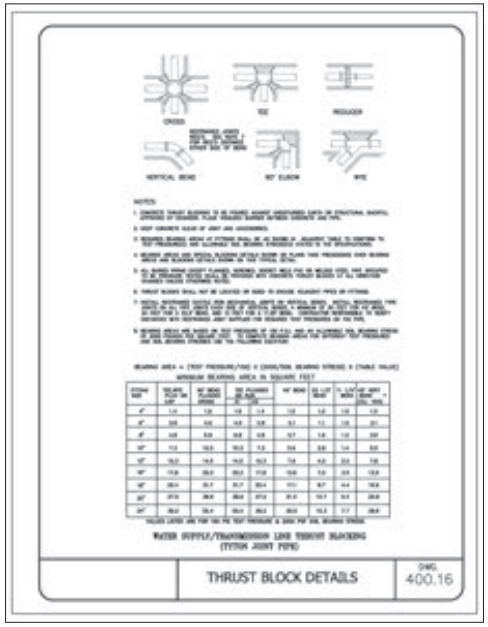
NOTE:
NO CALCULATIONS FOR PH.1 WAS INCLUDED ONLY IN THE PH. 1 CIVIL PLANS. SEE ATTACHED.











Shoreline Phase 1 10-year Storm Pipe Capacities

Pipe Section	Area Contributing to Pipe (sf)	C-value	Tc (min)	Intensity (in/hr)	Peak Flow (cfs)	Pipe Size (in)	Pipe Slope	Pipe Capacity (cfs)
3-17	60,012	0.7	15	2.08	2.0	15	31.20%	39.1
7-14	46,595	0.7	15	2.08	1.6	15	27.80%	36.9
10-12	89,234	0.6	15	2.08	2.6	15	11.50%	23.7
11-10	79,697	0.6	15	2.08	2.3	15	1.00%	7.0
8-9	195,024	0.55	15	2.08	5.1	15	1.00%	7.0
6-7	262,602	0.5	15	2.08	6.3	18	1.25%	7.8
2-3	418,952	0.5	30	1.38	6.6	15	7.86%	19.6
Out of Box 1	544,922	0.5	30	1.38	8.6	15	9.20%	21.2
Relocated southwest Longview Boxes	71,301	0.6	15	2.08	2.0	15	5.00%	15.7
23	104,667	0.4	15	2.08	2.0	15	2.00%	9.9

SHORELINE PHASE 1 STORM DRAIN DISCUSSION

ALL PIPES HAVE BEEN SIZED FOR THE 10-YEAR STORM EVENT USING RAINFALL DATA FROM THE NOAA WEBSITE FOR THE HIDEOUT AREA. THE RATIONAL METHOD WAS USED TO CALCULATE PEAK FLOWS FOR PHASE 1 INCLUDING HILLSIDE AREAS FLOWING INTO THE SITE & THE ADJACENT NORTH AREA WHERE 2 FUTURE LOTS WILL BE DEVELOPED BY OTHERS. THE ADJACENT SPREADSHEET SHOWS THE 10-YEAR PEAK FLOWS FOR EACH SECTION OF PIPE AS WELL AS THE PIPE CAPACITY.

DURING THE 100-YEAR STORM EVENT, THE STORM DRAIN PIPES CAN CONVEY THE MAJORITY OF THE STORM WATER. THE 100-YEAR PEAK FLOW FOR THE ENTIRE SITE WAS CALCULATED USING THE FOLLOWING DATA:

RATIONAL FORMULA : Q=CIA

AREA CONTRIBUTING TO NORTH STORM DRAIN PIPES = 544,922 SF

C-VALUE OF ENTIRE SITE = 0.50

TIME OF CONCENTRATION = 30 MIN.

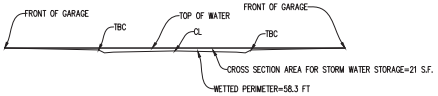
INTENSITY = 2.74 IN/HR

100-YEAR PEAK FLOW = 17.1 CFS.

THE 15" ADS PIPE COLLECTING THE RUNOFF FROM THE ENTIRE AREA CONTRIBUTING TO THE STORM DRAIN PIPES FLOWING NORTH HAS A CAPACITY OF 21.2 CFS. IN THE EVENT THAT STORM WATER CANNOT BE COLLECTED INTO THE STORM DRAIN SYSTEM AND FLOWS IN THE ROAD, THE CAPACITY OF FLOW IN THE ROADWAY WAS CALCULATED USING MANNING'S EQUATION FOR OPEN CHANNEL FLOW. THE DIAGRAM BELOW DEPICTS THE VALUES USED IN THE CALCULATION.

THE FLOW CAPACITY OF THE ROADWAY UP TO THE GARAGE = 94.1 CFS.

THESE STORM DRAIN CALCULATIONS SHOW THERE IS NO DANGER OF FLOODING IN LOWER UNITS DURING THE 100-YEAR STORM EVENT.



*SECTION SHOWS FLOWS WITH ROAD SLOPES AT S=0.6%

MANNING'S EQUATION FOR FLOW CALCULATES A FLOW CAPACITY OF 94.1 CFS IN ROADWAY

ROADWAY CAPACITY FOR 100-YEAR STORM EVENT

GENERAL CONSTRUCTION & DEVELOPMENT
3214 NORTH UNIV. AVE. #605
PROVO, UT 84604
(801) 434-8390

EXCEL ENGINEERING
David W. Peterson, P.E., License #270393
12 West 100 North, Suite 201, American Fork, UT 84003
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REVISIONS

Rev.	Date	Description
1	04/19/17	REVISED AS PER HIDEOUT COMMENTS

SHORELINE
HIDEOUT PHASE 1 UTAH

Drawn by: G.J.Y.
Designed by: G.J.Y.
Checked by: D.W.P.

DETAIL SHEET

Scale: 1"=80'
Date: 03/29/17
D2

Shoreline Phase 3 Storm Drainage Report

August 19, 2021

Introduction:

Shoreline Phase 3 is located downstream of Shoreline Phase 1 and upstream of Shoreline Phase 2. However, it does not receive runoff from Shoreline Phase 1, nor does it contribute runoff to Shoreline Phase 2. The storm drain system in this phase is independent from the existing phases. The storm runoff from this phase of Shoreline will discharge into a temporary retention basin that will be constructed to the southwest of phase 3. The temporary retention basin will ensure that no storm runoff will flow into the existing Shoreline Phase 2 area. Future Shoreline development will remove the retention basin and connect onto the pipe at the discharge point and runoff will be conveyed through pipes and detained and treated as future design deems necessary. No treatment to the storm water is proposed at this time since it is discharging into a temporary retention basin, but will be included with the storm drain design in future phases. The attached subarea map shows the phase 3 subareas along with the storm runoff retention location.

Pre-Development and Post-Development Discharge

Pre-development discharge for Shoreline Phase 3 is calculated with Q=CIA.

C-value for pre-developed = 0.3.

I = 2.74 in/hr (30 minute time of concentration for the 100-year storm event)

A = 10.66 acres (total acreage of area flowing to pond)

Q=8.76 cfs

Post development discharge will be 0 cfs at this time since the temporary retention basin will hold the entire 100-year storm event with no release.

Future development will convey all storm runoff from this phase to a detention basin that will be located to the south of this phase and have a controlled release of 0.2 cfs into the reservoir. A controlled release of 0.2 cfs/acre would result in a post-development discharge of 2.1 cfs.

100-Year Retention Calculations

The proposed temporary retention basin has been sized to retain the entire 100-year, 24-hour storm. The site was divided in to impervious and pervious areas with each are assigned its respective C-value. The rational method was used to calculate the required storage volume. The attached *Shoreline Phase 3 100-Year Storm Water Retention Calculations* spreadsheet shows the required retention volume along with the sizing calculations for the temporary retention basin. The proposed temporary retention basin is sufficient to retain the 100-year storm from this phase of Shoreline.

100-Year Peak Flow Calculations

The pipes on this project were sized to convey the 100-yr storm event. These pipe capacity calculations are shown on the attached *Shoreline Phase 3 100-yr Storm Pipe Capacities* spreadsheet. Rainfall data from NOAA Atlas 14, Volume 1, Version 5 for the Hideout area was used with the rational method to perform the calculations. As shown on the spreadsheet, all pipes on-site are sized adequately to convey the 100-year peak flow to and through the existing culvert into the temporary retention basin. There are some low points located along the roadway street sections. Since there will be no flow path between the buildings, the inlets and pipes were sized to convey the 100-year event The proposed pipe design ensures that those 100-year peak flows will get to the retention basin without having to flow in streets or in swales between buildings.

In addition to sizing the pipes for the 100-year peak flow, the inlets in this phase were checked to ensure that they had capacity to receive the 100-year flows. The attached *Shoreline 100-year Inlet Capacities* spreadsheet shows that inlets throughout the site have sufficient capacity to get the 100-year peak flows into the storm drain pipes. Double inlets were proposed at some low points as an extra safety measure to ensure that storm runoff can get into the pipes.

Conclusions:

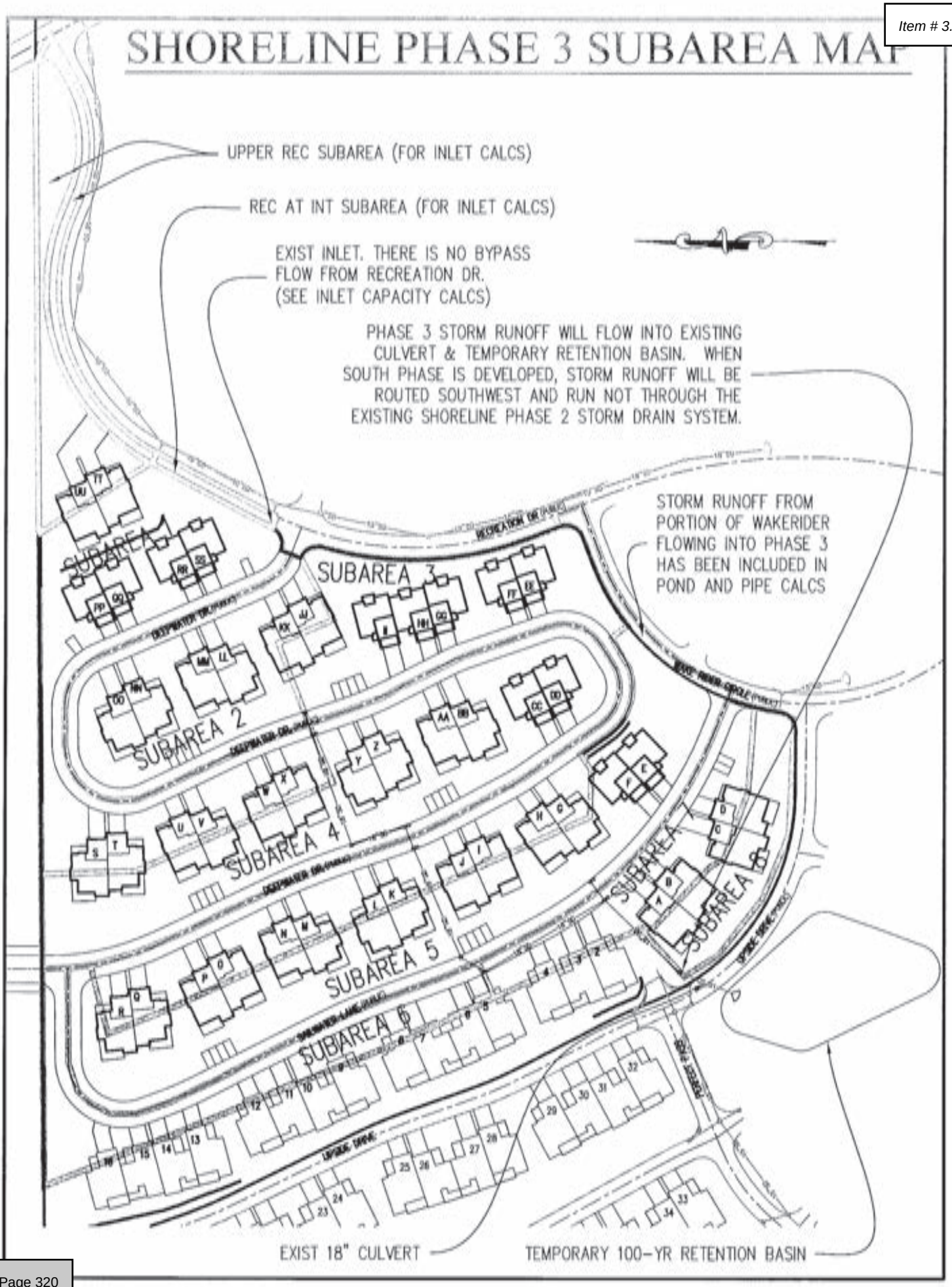
The storm water system for this phase of Shoreline is designed to convey and retain the 100-year peak flows. Storm runoff from this site does not contribute to existing Shoreline Phase 2 storm drain system.

PROFESSIONAL ENGINEER
8/19/21
No. 5571326
Glen James
Yost
STATE OF UTAH

Appendix

- *Shoreline Phase 3 Subarea Map*
- *Shoreline Phase 3 100-Year Storm Water Retention Calculations*
- *Shoreline Phase 3 100-year Storm Pipe Capacities*
- *Shoreline Phase 3 100-year Inlet Capacities*
- *NOAA Precipitation Data*

SHORELINE PHASE 3 SUBAREA MAP



Shoreline Phase 3
100-Year Storm Water Retention Calculations
19-Aug-21

The storm drain calculations were performed using the rational method.

Hydrologic Calculations

CA CALCULATION

	C	Area (sf)	C * A
Open Space	0.15	192602	28890
Impervious	0.90	271662	244496
Total CA		464264	273386
Overall Site C-value	0.59		
Total Acres	10.66		

Retention calculations

Lapsed Time (min.)	Rainfall intensity (in/hr)	Total Rainfall (in)	Rainfall Volume (cu.ft.)	Release Volume (cu.ft.)	Required Storage (cu.ft.)
A	B	C	D	E	F
1440	0.13	3.09	70397	0	70397

Required Retention Storage = 70,397 cf

Notes:
A, B, & C are based upon NOAA Atlas 14, Volume 1, Version 5 Precipitaion Estaimates for the 100-year storm
D = C / (12 inches/foot) x total acreage of site x 43,560 sf/acre x run-off coefficient, where Q=CIA and V=CiA
E = Infiltration rate in pond (cfs) x A x 60 sec.
F = D - E to determine storage volume

Retention Basin

Elevation	Volume (cf)	
6351	94,102	1' foot of freeboard
6350	71,466	Top of water surface
6349	50,602	
6348	41,027	
6347	32,281	
6346	24,337	
6345	17,164	
6344	10,736	
6343	5,024	
6342	0	Bottom of Pond

Shoreline Phase 3 100-year Storm Pipe Capacities

Combined Subareas	Area Contributing to Pipe (ac)	C-value	Tc (min)	Intensity (in/hr)	Peak Flow (cfs)	Pipe Size (in)	Pipe Slope	Pipe Capacity (cfs)
2	1.04	0.59	15	4.08	2.5	18	0.5%	8.1
2,1	2.63	0.59	15	4.08	6.3	18	15.8%	45.2
2,1,4	4.47	0.59	15	4.08	10.8	18	1.0%	11.4
2,1,4,3	6.50	0.59	15	4.08	15.6	18	14.9%	43.9
2,1,4,3,6	7.19	0.59	15	4.08	17.3	18	2.5%	18.0
5	1.98	0.59	15	4.08	4.8	18	0.5%	8.1
2,1,4,3,6,5,7	9.75	0.59	15	4.08	23.5	18	7.6%	31.4
2,1,4,3,6,5,7,8	10.17	0.59	15	4.08	24.5	18	5.0%	25.5

Upper Recreation	0.65	0.6	15	4.08	1.60	--	--	--
Recreation at intersection	0.05	0.85	15	4.08	0.26	--	--	--

Shoreline Phase 3 100-year Inlet Capacities

Subarea	a (sf)	acres	peak flow into inlet (cfs)	Inlet Type	Captured (cfs)	Bypass (cfs)	Spread (ft)
Upper Rec	28416	0.65	1.60	Single inlet on grade	1.50	0.1*	3.5
Rec at Int	2058	0.05	0.26	Single inlet on grade	0.36	0	1.1
1	69330	1.59	3.83	Double inlet in sag	3.83	0	9.9
2	45218	1.04	2.50	Single inlet in sag	2.50	0	9.4
3	88274	2.03	4.88	Double inlet in sag	4.88	0	10.7
4	80271	1.84	4.44	Double inlet in sag	4.44	0	9.8
5	86207	1.98	4.76	Double inlet in sag	4.76	0	10.4
6	30196	0.69	1.67	Single inlet on grade	1.17	0.50*	7.5
7	25232	0.58	1.39	Double inlet in sag	1.89	0	3.7
8	18240	0.42	1.01	Area drain	1.01	0	--

capacity of single 2'x3' grate in sag position at a depth of 6" (FL to TBC) = 5.8 cfs^
capacity of double 2'x3' grate in sag position at a depth of 6" (FL to TBC) = 8.0 cfs^

* - Bypass calculated with Hyrdaflow express and is captured in next inlet downstream
^ - calculated with Hydraflow express

Item # 3.

NOAA Atlas 14, Volume 1, Version 5
Location name: Kamas, Utah, USA*
Latitude: 40.6483°, Longitude: -111.4035°
Elevation: 6478.48 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.125 (0.109-0.147)	0.159 (0.139-0.187)	0.219 (0.190-0.256)	0.273 (0.235-0.320)	0.361 (0.302-0.425)	0.443 (0.360-0.526)	0.538 (0.424-0.646)	0.651 (0.492-0.793)	0.833 (0.597-1.04)	0.998 (0.685-1.27)
10-min	0.191 (0.166-0.223)	0.242 (0.212-0.284)	0.333 (0.290-0.390)	0.416 (0.358-0.486)	0.549 (0.459-0.647)	0.675 (0.548-0.800)	0.820 (0.646-0.984)	0.991 (0.749-1.21)	1.27 (0.908-1.58)	1.52 (1.04-1.94)
15-min	0.236 (0.206-0.276)	0.300 (0.263-0.352)	0.413 (0.359-0.483)	0.516 (0.444-0.603)	0.681 (0.569-0.802)	0.836 (0.680-0.992)	1.02 (0.799-1.22)	1.23 (0.929-1.50)	1.57 (1.13-1.96)	1.88 (1.29-2.40)
30-min	0.318 (0.278-0.372)	0.405 (0.354-0.474)	0.556 (0.484-0.650)	0.694 (0.598-0.812)	0.916 (0.767-1.08)	1.13 (0.915-1.34)	1.37 (1.08-1.64)	1.65 (1.25-2.02)	2.12 (1.52-2.64)	2.54 (1.74-3.24)
60-min	0.394 (0.344-0.461)	0.501 (0.438-0.587)	0.688 (0.599-0.805)	0.859 (0.740-1.00)	1.13 (0.949-1.34)	1.39 (1.13-1.65)	1.69 (1.33-2.03)	2.06 (1.55-2.49)	2.62 (1.88-3.26)	3.14 (2.15-4.00)
2-hr	0.503 (0.449-0.577)	0.626 (0.558-0.717)	0.823 (0.729-0.944)	1.00 (0.882-1.16)	1.31 (1.12-1.51)	1.59 (1.32-1.85)	1.92 (1.54-2.27)	2.31 (1.79-2.78)	2.95 (2.15-3.65)	3.54 (2.46-4.47)
3-hr	0.581 (0.524-0.658)	0.722 (0.650-0.816)	0.920 (0.822-1.04)	1.11 (0.980-1.25)	1.40 (1.21-1.59)	1.66 (1.41-1.90)	1.98 (1.63-2.30)	2.34 (1.87-2.81)	2.97 (2.25-3.68)	3.57 (2.57-4.51)
6-hr	0.767 (0.703-0.850)	0.947 (0.866-1.05)	1.17 (1.06-1.30)	1.36 (1.23-1.51)	1.65 (1.47-1.84)	1.89 (1.65-2.12)	2.16 (1.86-2.45)	2.47 (2.07-2.84)	3.05 (2.47-3.72)	3.59 (2.82-4.56)
12-hr	0.975 (0.894-1.07)	1.20 (1.10-1.32)	1.46 (1.33-1.61)	1.68 (1.53-1.86)	2.02 (1.80-2.24)	2.29 (2.01-2.56)	2.58 (2.23-2.92)	2.90 (2.45-3.33)	3.37 (2.77-3.97)	3.79 (3.04-4.60)
24-hr	1.22 (1.12-1.32)	1.50 (1.38-1.63)	1.82 (1.68-1.98)	2.09 (1.92-2.28)	2.48 (2.26-2.69)	2.78 (2.53-3.02)	3.09 (2.79-3.36)	3.42 (3.07-3.73)	3.87 (3.44-4.23)	4.23 (3.72-4.67)
2-day	1.40 (1.29-1.52)	1.73 (1.60-1.88)	2.10 (1.94-2.27)	2.41 (2.22-2.61)	2.84 (2.61-3.07)	3.17 (2.90-3.44)	3.52 (3.20-3.82)	3.87 (3.50-4.22)	4.36 (3.89-4.78)	4.74 (4.19-5.21)
3-day	1.56 (1.44-1.69)	1.92 (1.78-2.09)	2.33 (2.16-2.53)	2.67 (2.47-2.90)	3.14 (2.89-3.41)	3.51 (3.22-3.81)	3.89 (3.55-4.23)	4.28 (3.88-4.66)	4.81 (4.31-5.26)	5.22 (4.64-5.73)
4-day	1.72 (1.59-1.86)	2.12 (1.96-2.30)	2.56 (2.35-2.79)	2.94 (2.72-3.19)	3.45 (3.18-3.74)	3.85 (3.53-4.18)	4.26 (3.90-4.63)	4.69 (4.26-5.10)	5.26 (4.73-5.74)	5.70 (5.09-6.25)
7-day	2.07 (1.92-2.26)	2.55 (2.36-2.78)	3.09 (2.85-3.36)	3.53 (3.25-3.84)	4.13 (3.79-4.49)	4.59 (4.20-5.00)	5.07 (4.62-5.53)	5.55 (5.03-6.07)	6.20 (5.57-6.81)	6.70 (5.98-7.38)
10-day	2.36 (2.17-2.56)	2.91 (2.68-3.16)	3.50 (3.23-3.79)	3.97 (3.66-4.30)	4.61 (4.23-4.99)	5.08 (4.66-5.50)	5.56 (5.08-6.03)	6.03 (5.49-6.56)	6.65 (6.02-7.25)	7.11 (6.40-7.78)
20-day	3.11 (2.88-3.36)	3.83 (3.55-4.14)	4.59 (4.25-4.95)	5.17 (4.79-5.57)	5.93 (5.48-6.39)	6.49 (5.99-6.98)	7.03 (6.47-7.57)	7.55 (6.94-8.15)	8.21 (7.50-8.88)	8.68 (7.90-9.42)
30-day	3.79 (3.52-4.08)	4.66 (4.33-5.02)	5.54 (5.15-5.96)	6.22 (5.78-6.68)	7.09 (6.57-7.61)	7.72 (7.14-8.29)	8.33 (7.69-8.96)	8.92 (8.20-9.60)	9.65 (8.83-10.4)	10.2 (9.27-11.0)
45-day	4.72 (4.39-5.08)	5.80 (5.39-6.25)	6.87 (6.39-7.39)	7.69 (7.15-8.26)	8.72 (8.10-9.36)	9.46 (8.77-10.2)	10.2 (9.41-10.9)	10.8 (10.0-11.6)	11.6 (10.7-12.5)	12.2 (11.2-13.1)
60-day	5.60 (5.22-6.00)	6.88 (6.42-7.38)	8.11 (7.58-8.69)	9.04 (8.43-9.68)	10.2 (9.49-10.9)	11.0 (10.2-11.7)	11.7 (10.9-12.6)	12.4 (11.5-13.3)	13.3 (12.3-14.2)	13.8 (12.8-14.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

Appendix H: NOAA Storm Values

NOAA Atlas 14, Volume 1, Version 5
Location name: Kamas, Utah, USA*
Latitude: 40.6402°, Longitude: -111.397°
Elevation: 6715 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.50 (1.31-1.75)	1.91 (1.67-2.23)	2.62 (2.28-3.06)	3.28 (2.82-3.83)	4.32 (3.61-5.10)	5.30 (4.32-6.30)	6.46 (5.08-7.74)	7.80 (5.90-9.50)	9.98 (7.15-12.4)	12.0 (8.21-15.3)
10-min	1.14 (0.996-1.34)	1.45 (1.27-1.70)	2.00 (1.73-2.33)	2.49 (2.14-2.92)	3.29 (2.75-3.88)	4.04 (3.28-4.79)	4.91 (3.86-5.89)	5.93 (4.49-7.24)	7.60 (5.44-9.47)	9.10 (6.25-11.6)
15-min	0.944 (0.824-1.10)	1.20 (1.05-1.40)	1.65 (1.44-1.93)	2.06 (1.77-2.41)	2.72 (2.27-3.20)	3.34 (2.72-3.96)	4.06 (3.19-4.87)	4.90 (3.71-5.98)	6.28 (4.50-7.83)	7.52 (5.16-9.60)
30-min	0.636 (0.554-0.742)	0.808 (0.706-0.946)	1.11 (0.966-1.30)	1.39 (1.19-1.62)	1.83 (1.53-2.16)	2.25 (1.83-2.67)	2.73 (2.15-3.28)	3.30 (2.50-4.03)	4.23 (3.03-5.27)	5.07 (3.48-6.46)
60-min	0.393 (0.343-0.460)	0.500 (0.437-0.586)	0.687 (0.598-0.803)	0.857 (0.738-1.00)	1.13 (0.947-1.34)	1.39 (1.13-1.65)	1.69 (1.33-2.03)	2.04 (1.55-2.49)	2.62 (1.88-3.26)	3.14 (2.15-4.00)
2-hr	0.251 (0.224-0.287)	0.312 (0.278-0.358)	0.410 (0.364-0.471)	0.501 (0.440-0.577)	0.653 (0.557-0.754)	0.791 (0.658-0.922)	0.957 (0.768-1.13)	1.15 (0.890-1.39)	1.47 (1.07-1.82)	1.76 (1.23-2.23)
3-hr	0.192 (0.173-0.218)	0.239 (0.215-0.270)	0.305 (0.272-0.344)	0.366 (0.325-0.413)	0.464 (0.402-0.526)	0.551 (0.466-0.631)	0.655 (0.539-0.761)	0.777 (0.619-0.934)	0.984 (0.745-1.22)	1.19 (0.852-1.50)
6-hr	0.126 (0.116-0.140)	0.156 (0.143-0.173)	0.192 (0.175-0.214)	0.225 (0.203-0.249)	0.272 (0.242-0.304)	0.312 (0.273-0.350)	0.357 (0.306-0.405)	0.408 (0.342-0.471)	0.505 (0.409-0.619)	0.599 (0.465-0.759)
12-hr	0.079 (0.073-0.087)	0.098 (0.089-0.108)	0.119 (0.109-0.131)	0.137 (0.125-0.152)	0.165 (0.147-0.183)	0.187 (0.164-0.209)	0.211 (0.182-0.239)	0.237 (0.201-0.272)	0.276 (0.227-0.325)	0.310 (0.248-0.381)
24-hr	0.049 (0.045-0.054)	0.061 (0.056-0.066)	0.074 (0.068-0.081)	0.085 (0.078-0.093)	0.101 (0.092-0.110)	0.113 (0.103-0.123)	0.126 (0.114-0.137)	0.139 (0.125-0.152)	0.158 (0.140-0.172)	0.172 (0.152-0.193)
2-day	0.028 (0.026-0.031)	0.035 (0.032-0.038)	0.042 (0.039-0.046)	0.049 (0.045-0.053)	0.057 (0.053-0.062)	0.064 (0.059-0.070)	0.071 (0.065-0.077)	0.078 (0.071-0.085)	0.088 (0.079-0.096)	0.095 (0.085-0.105)
3-day	0.021 (0.019-0.023)	0.026 (0.024-0.028)	0.031 (0.029-0.034)	0.036 (0.033-0.039)	0.042 (0.039-0.046)	0.047 (0.043-0.051)	0.052 (0.048-0.057)	0.057 (0.052-0.062)	0.064 (0.058-0.070)	0.070 (0.062-0.077)
4-day	0.017 (0.016-0.019)	0.021 (0.020-0.023)	0.026 (0.024-0.028)	0.029 (0.027-0.032)	0.035 (0.032-0.037)	0.039 (0.035-0.042)	0.043 (0.039-0.046)	0.047 (0.043-0.051)	0.053 (0.047-0.057)	0.057 (0.051-0.062)
7-day	0.012 (0.011-0.013)	0.014 (0.013-0.016)	0.017 (0.016-0.019)	0.020 (0.018-0.022)	0.023 (0.021-0.025)	0.026 (0.024-0.028)	0.029 (0.026-0.031)	0.031 (0.028-0.034)	0.035 (0.031-0.038)	0.038 (0.034-0.042)
10-day	0.009 (0.008-0.010)	0.011 (0.010-0.012)	0.014 (0.013-0.015)	0.016 (0.014-0.017)	0.018 (0.017-0.020)	0.020 (0.018-0.022)	0.022 (0.020-0.024)	0.024 (0.022-0.026)	0.026 (0.024-0.029)	0.028 (0.025-0.031)
20-day	0.006 (0.005-0.006)	0.007 (0.007-0.008)	0.009 (0.008-0.009)	0.010 (0.009-0.011)	0.011 (0.011-0.012)	0.013 (0.012-0.014)	0.014 (0.013-0.015)	0.015 (0.013-0.016)	0.016 (0.015-0.017)	0.017 (0.015-0.018)
30-day	0.005 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.006-0.007)	0.008 (0.007-0.008)	0.009 (0.008-0.010)	0.010 (0.009-0.011)	0.011 (0.010-0.011)	0.011 (0.010-0.012)	0.012 (0.011-0.013)	0.013 (0.012-0.014)
45-day	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.006 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.007-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.011)	0.010 (0.009-0.011)
60-day	0.003 (0.003-0.004)	0.004 (0.004-0.004)	0.005 (0.005-0.005)	0.006 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.007)	0.007 (0.007-0.008)	0.008 (0.007-0.008)	0.008 (0.008-0.009)	0.009 (0.008-0.009)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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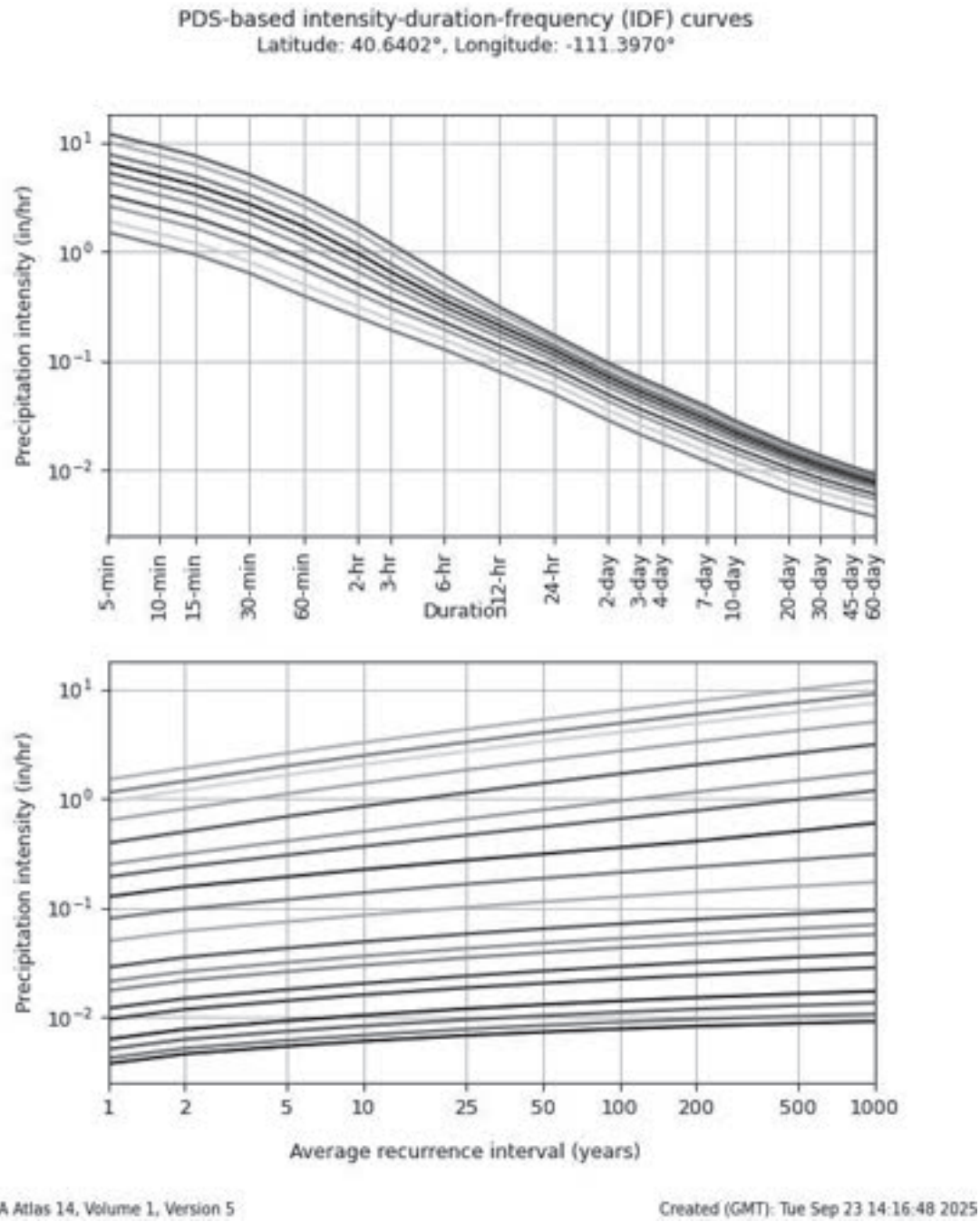
PF graphical



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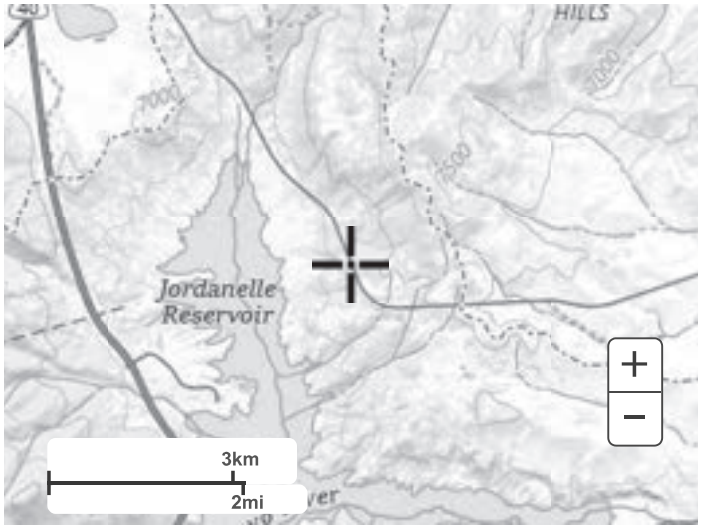
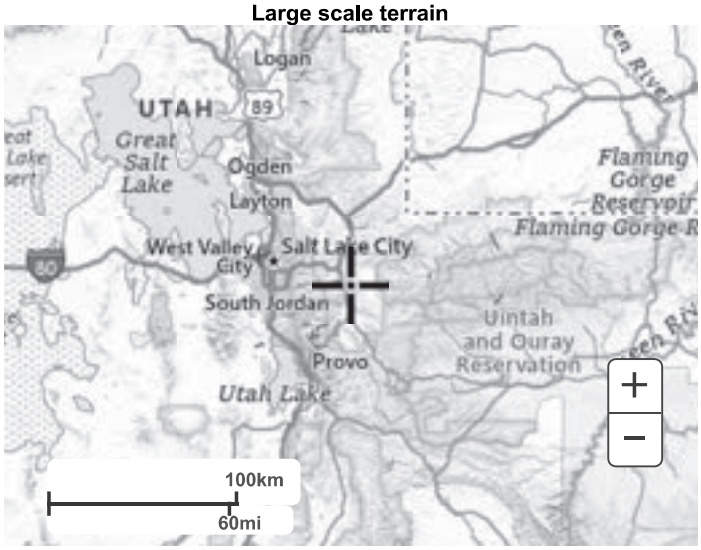
Maps & aerials

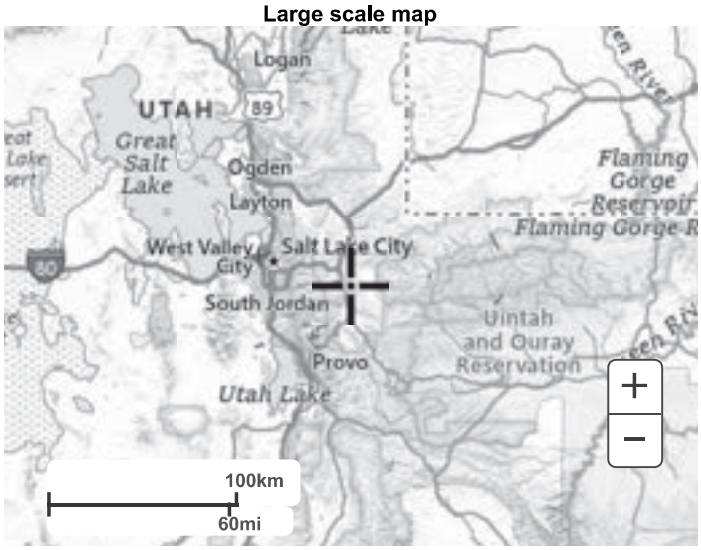
Small scale terrain



Large scale terrain



Large scale map



Large scale aerial

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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

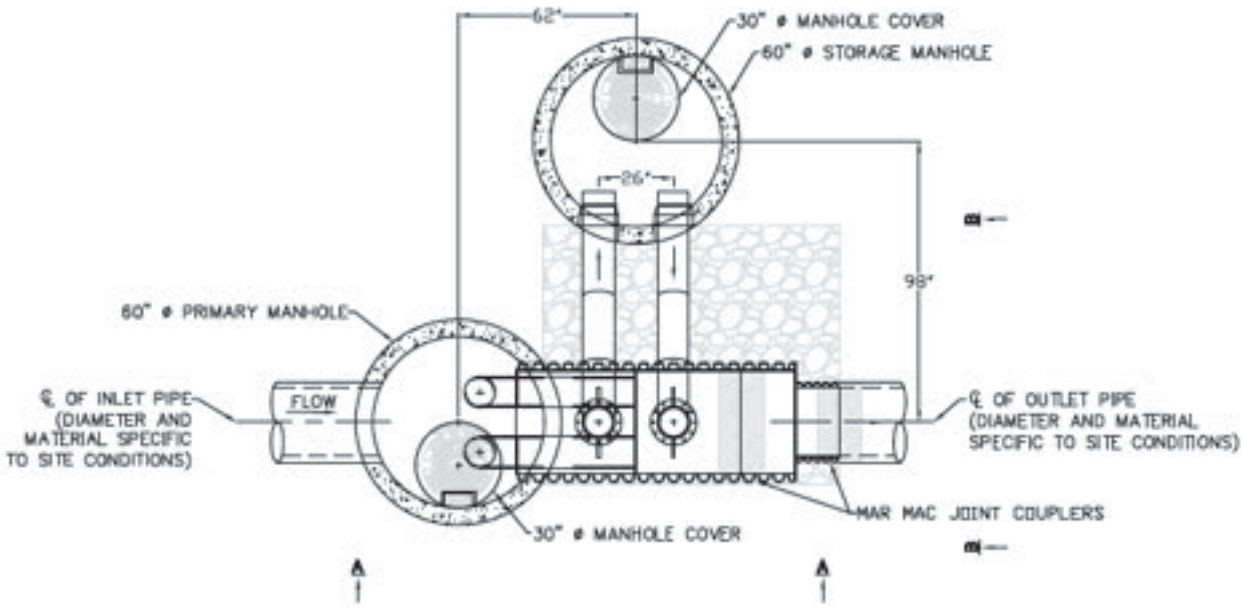
Disclaimer

Appendix I: BaySaver Information

BaySeparator K units
Installation Guide

This installation guide is reference for installing the BaySeparator water quality units K models into a precast concrete structures in the field. The components of the BaySeparator concrete package are as follows:

CAD image of a BaySeparator



Please check that all components are on site. When installing a standard “K” model, the separator component will be shipped to the job site in a “wrapped” pallet with all the parts and this instruction sheet included. The appropriate concrete manholes or structures may be shipped separately to the job site, but both internal components and concrete structures are required to complete the installation. Do not proceed until all components are at the given site.

Below is a list of tools that may be required for installation:

- ◻ 1/2” Diameter Carbide Tipped Concrete Bit (for XK units)
- ◻ Hammer Drill
- ◻ Adjustable Wrench
- ◻ Marker for writing on the concrete wall
- ◻ Hammer Drill for Concrete (Fits the 1/2” Diameter Concrete Drill Bit)
- ◻ Driver or deep socket set (English) for installation of provided 1/2” Concrete Wedge Anchors.
- ◻ Hammer
- ◻ Level
- ◻ Ladder that will extend to bottom of the manhole structures
- ◻ Safety Glasses
- ◻ Hard Hat
- ◻ Protective Gloves
- ◻ Site Drawings
- ◻ ADS Design Layout

Standard Installation Methods

1. Contact utility locator to mark any nearby underground utilities and make sure it is safe to excavate.
2. Reference the site plan and stake out the location of the BaySeparator unit to be installed.
3. Excavate the hole, providing any sheeting and shoring necessary to comply with all federal, state and local safety regulations.
4. Level the subgrade to the proper elevation. Verify the elevation against the BaySeparator system's dimensions, the invert elevations, and the site plans. Adjust the base aggregate, if necessary.
5. Have the soil bearing capacity verified by a licensed engineer for the required load bearing capacity.
6. Proceed to the appropriate installation instructions below.

Standard BaySeparator "K" series installation instructions

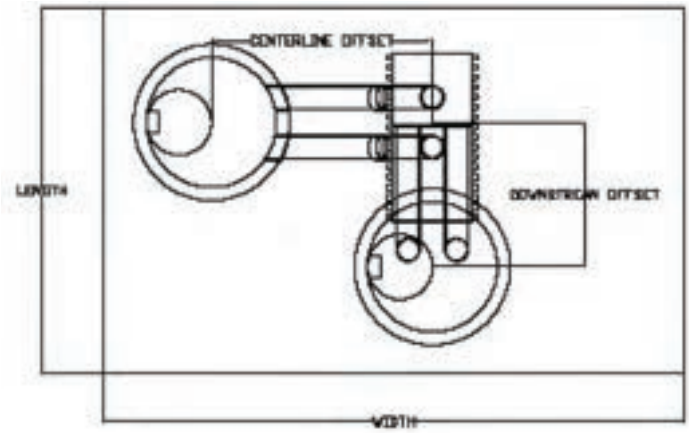
Determine the separator configuration (right-handed or left-handed) and compare it to the configuration specified on the site plan. To determine the configuration, look at the plans and imagine standing upstream and looking downstream through the system. If the storage manhole is located on the right then the unit is "right-handed", and vice versa. If the unit is not properly configured, the stub pipes, located on the bottom or belly of the BaySeparator that feed into the secondary manhole, must be repositioned by unbolting the two bottom flange sections and swinging the stubs 180 degrees from its original configuration (see Figure 1 Flange view). Remember, the bolts must be retightened to the appropriate torque using a crisscross pattern for tightening, similar to putting an automobile tire back on to a car.

See table 1 and diagram 1 for the approximate excavation limits and BaySeparator Unit layout.

Table 1

Unit	Footprint Length	Footprint Width
½ K	132" (3.4 m)	130" (3.3 m)
1K	132" (3.4 m)	151" (3.8 m)
3K	169" (4.3 m)	170" (4.3 m)
5K	176" (4.5 m)	178" (4.5 m)
10K	254" (6.5 m)	252" (6.4 m)

Diagram 1



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Appendix J: SSA Model Results

Project Description

File Name	Shoreline Model.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	User-Defined
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	YES

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qty
Rain Gages	0
Subbasins	49
Nodes	68
Junctions	21
Outfalls	5
Flow Diversions	0
Inlets	42
Storage Nodes	0
Links	95
Channels	32
Pipes	63
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Subbasin Summary

SN	Subbasin ID	Area (ac)	Peak Rate Factor	Weighted Curve Number	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	1	0.33	484.00	90.00	1.85	0.97	0.32	0.65	0 00:22:00
2	2	1.49	484.00	86.50	1.85	0.76	1.14	1.79	0 00:35:00
3	3	0.23	484.00	90.00	1.85	0.97	0.22	0.45	0 00:22:00
4	5	0.26	484.00	90.00	1.85	0.97	0.25	0.51	0 00:22:00
5	6	0.64	484.00	86.50	1.85	0.76	0.49	0.77	0 00:35:00
6	7	0.44	484.00	90.00	1.85	0.97	0.43	0.86	0 00:22:00
7	8	1.11	484.00	86.50	1.85	0.76	0.85	1.33	0 00:35:00
8	9	0.95	484.00	86.50	1.85	0.76	0.73	1.13	0 00:35:00
9	10	0.43	484.00	90.00	1.85	0.97	0.42	0.84	0 00:22:00
10	11	0.14	484.00	98.00	1.85	1.63	0.23	0.54	0 00:15:00
11	12	0.13	484.00	98.00	1.85	1.63	0.21	0.49	0 00:15:00
12	13	0.11	484.00	98.00	1.85	1.63	0.18	0.41	0 00:15:00
13	14	0.10	484.00	98.00	1.85	1.63	0.16	0.39	0 00:15:00
14	15	0.28	484.00	98.00	1.85	1.63	0.46	1.07	0 00:15:00
15	17	0.08	484.00	98.00	1.85	1.63	0.13	0.32	0 00:15:00
16	18	0.13	484.00	98.00	1.85	1.63	0.21	0.49	0 00:15:00
17	19	0.78	484.00	86.50	1.85	0.76	0.60	0.94	0 00:35:00
18	20	0.39	484.00	90.00	1.85	0.97	0.38	0.76	0 00:22:00
19	21	1.04	484.00	86.50	1.85	0.76	0.79	1.25	0 00:35:00
20	22	0.46	484.00	90.00	1.85	0.97	0.45	0.90	0 00:22:00
21	23	0.07	484.00	98.00	1.85	1.63	0.11	0.27	0 00:15:00
22	24	0.10	484.00	98.00	1.85	1.63	0.16	0.39	0 00:15:00
23	25	0.82	484.00	86.50	1.85	0.76	0.63	0.98	0 00:35:00
24	26	0.28	484.00	90.00	1.85	0.97	0.27	0.55	0 00:22:00
25	27	0.17	484.00	98.00	1.85	1.63	0.28	0.66	0 00:15:00
26	29	1.55	484.00	86.50	1.85	0.76	1.18	1.85	0 00:35:00
27	30	0.45	484.00	90.00	1.85	0.97	0.44	0.87	0 00:22:00
28	31	1.38	484.00	86.50	1.85	0.76	1.05	1.66	0 00:35:00
29	32	0.59	484.00	90.00	1.85	0.97	0.57	1.15	0 00:22:00
30	33	0.24	484.00	98.00	1.85	1.63	0.39	0.93	0 00:15:00
31	34	1.22	484.00	90.00	1.85	0.97	1.18	2.39	0 00:22:00
32	35	0.16	484.00	98.00	1.85	1.63	0.26	0.61	0 00:15:00
33	36	0.40	484.00	90.00	1.85	0.97	0.39	0.79	0 00:22:00
34	37	0.10	484.00	98.00	1.85	1.63	0.16	0.39	0 00:15:00
35	38	0.10	484.00	98.00	1.85	1.63	0.16	0.39	0 00:15:00
36	39	0.50	484.00	86.50	1.85	0.76	0.38	0.77	0 00:22:00
37	40	1.28	484.00	86.50	1.85	0.76	0.98	1.53	0 00:35:00
38	41	0.05	484.00	86.50	1.85	0.76	0.04	0.08	0 00:22:00
39	100-Year	124.30	484.00	81.73	1.85	0.54	67.37	75.08	0 00:56:47
40	FUTURE1	1.75	484.00	90.00	1.85	0.97	1.70	3.20	0 00:25:00
41	FUTURE2	7.99	484.00	91.00	1.85	1.04	8.27	11.88	0 00:40:00
42	FUTURE3	12.63	484.00	87.00	1.85	0.79	9.99	14.37	0 00:40:00
43	FUTURE4	11.09	484.00	90.00	1.85	0.97	10.75	15.45	0 00:40:00
44	PH.1	53.20	484.00	72.00	1.85	0.23	12.34	33.34	0 00:10:00
45	PH.4	26.17	484.00	72.00	1.85	0.23	6.07	16.40	0 00:10:00

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft²)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	C (da
1	16B	Junction	6362.70	6367.98	6362.70	6367.98	0.00	53.52	6364.19	0.00	3.79	
2	22B	Junction	6348.29	6353.95	6348.29	6353.95	0.00	69.67	6349.94	0.00	4.01	
3	26B	Junction	6334.63	6340.06	6334.63	6340.06	0.00	72.82	6336.32	0.00	3.74	
4	36B	Junction	6317.52	6324.03	6317.52	6324.03	0.00	82.29	6319.24	0.00	4.79	
5	38B	Junction	6305.52	6311.43	6305.52	6311.43	0.00	105.01	6307.43	0.00	4.00	
6	42A	Junction	6290.51	6300.10	6290.51	6300.10	0.00	33.22	6399.07	0.00	3.02	
22	PH-2-2	Outfall	6323.50	6323.03	6316.50	6323.03	0.00	74.82	0.00			
23	Out-02	Outfall	0.00	6314.43	6308.53	6314.43	0.00	107.24	4280.96			
24	PH-2-1	Outfall	6323.50	6325.03	6314.29	6325.03	0.00					
25	PH-2-3	Outfall	6330.00	8327.23	6321.54	8327.23	0.00					
26	PipeOut	Outfall	4280.96	6326.14	6320.57	6326.14	0.00					
12	33B	Junction	6319.46	6326.67	6319.46	6326.67	0.00					
13	20B	Junction	6351.39	6355.35	6351.39	6355.35	0.00					
14	11C	Junction	6373.53	6379.03	6373.53	6379.03	0.00					
15	11B	Junction	6387.50	6391.76	6387.50	6391.76	0.00					
16	Existing-1	Junction	6366.42	6370.00	6366.42	6370.00	0.00					
17	Existing-1	Junction	6365.74	6369.49	6365.74	6369.49	0.00					
18	0	Junction	6327.29	6330.79	6327.29	6330.79	0.00					
19	OFFSITE	Junction	6397.29	6402.09	6397.29	6402.09	0.00					
20	Existing-1	Junction	6365.41	6368.82	6365.41	6368.82	0.00					
21	42B	Junction	6287.86	6301.00	6287.86	6301.00	0.00					

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flo Dept Total Dep Rat
1	10	Pipe	10	38B	19.20	6307.86	6307.77	0.4700	15.000	0.0130	0.87	4.42	0.20	2.53	0.41	0.3
2	13	Pipe	13	14	22.10	6367.42	6367.20	1.0000	15.000	0.0130	0.43	6.45	0.07	2.70	0.28	0.2
3	14	Pipe	14	16B	52.28	165.65	161.94	7.1000	30.000	0.0130	40.59	102.27	0.40	12.71	1.53	0.6
4	15	Pipe	15	16A	23.00	6364.19	6364.07	0.5200	15.000	0.0130	4.19	4.67	0.90	3.78	1.06	0.8
5	16A	Pipe	16A	16B	36.40	6364.07	6363.70	1.0200	18.000	0.0130	20.94	42.13	0.50	4.65	1.79	0.6
6	16B	Pipe	16B	18	146.20	6362.70	6351.88	7.4000	30.000	0.0130	21.72	42.69	0.51	5.20	1.70	0.5
7	8	Pipe	8	9	263.20	6307.24	6306.19	0.4000	36.000	0.0130	0.32	6.46	0.05	2.51	0.20	0.1
8	9	Pipe	9	38B	41.50	6306.19	6306.02	0.4100	36.000	0.0130	56.96	175.17	0.33	44.58	1.66	0.5
9	17	Pipe	17	18	22.00	6353.35	6353.13	1.0000	15.000	0.0130	0.72	2.59	0.28	2.11	0.46	0.4
10	18	Pipe	18	22B	44.80	6351.38	6348.29	6.9000	36.000	0.0130	1.43	10.55	0.14	3.64	0.41	0.2
11	19	Pipe	19	20A	26.40	6352.04	6351.90	0.5300	12.000	0.0130	0.46	9.14	0.05	3.40	0.45	0.5
12	21	Pipe	21	22A	23.80	6350.40	6350.16	1.0100	18.000	0.0130	71.52	157.52	0.45	21.22	2.06	0.6
13	22A	Pipe	22A	22B	36.30	6349.66	6349.29	1.0200	24.000	0.0130	0.97	6.55	0.15	3.39	0.35	0.2
14	22B	Pipe	22B	24	145.60	6348.29	6337.14	7.6600	36.000	0.0130	5.44	13.72	0.40	32.23	0.26	0.2
15	23	Pipe	23	24	22.00	6339.33	6338.89	2.0000	15.000	0.0130	73.83	201.69	0.37	15.48	1.91	0.6
16	24	Pipe	24	26B	45.00	6337.14	6334.63	5.5800	36.000	0.0130	4.78	38.33	0.12	7.13	0.62	0.3
17	25	Pipe	25	26A	24.30	6336.99	6336.74	1.0300	15.000	0.0130	2.84	18.68	0.15	2.75	0.77	0.3
64	RD38	Channel	38A	40	382.74	6312.63	6300.00	3.3000	18.000	0.0130	0.01	33.77	0.00	10.48	0.03	0.0
65	RD-EXISTING	Channel	Existing-1A	15	363.00	6375.21	6368.38	1.8800	36.000	0.0130	0.12	32.03	0.00	1.35	0.13	0.2
66	R1	Channel	1	PH-2-2	32.73	6331.04	6330.00	3.1800	6.000	0.0320	0.03	62.04	0.00	3.02	0.04	0.0
67	R10	Channel	10	39	391.72	6311.61	6300.41	2.8600	6.000	0.0320	10.59	65.00	0.16	8.88	0.30	0.6
68	R11	Channel	11A	13	195.92	6392.18	6371.17	10.7200	6.000	0.0320	0.01	44.26	0.00	0.87	0.13	0.2
69	R12	Channel	12	14	217.47	6397.09	6371.17	11.9200	6.000	0.0320	7.04	49.14	0.14	11.58	0.26	0.6
70	R13	Channel	13	15	51.10	6371.17	6368.38	5.4600	6.000	0.0320	0.05	51.74	0.00	3.94	0.04	0.0
71	R14	Channel	14	18	206.59	6371.17	6357.10	6.8100	6.000	0.0320	0.01	48.58	0.00	2.13	0.14	0.2
72	R16	Channel	16A	17	151.24	6368.38	6357.10	7.4600	6.000	0.0320	2.52	48.55	0.05	12.25	0.20	0.4
73	R17	Channel	17	21	41.06	6357.10	6354.40	6.5800	6.000	0.0320	0.21	12.59	0.02	0.86	0.21	0.4
74	R18	Channel	18	24	210.84	6357.10	6343.08	6.6500	6.000	0.0320	0.27	29.22	0.01	3.12	0.12	0.2

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length (ft)	Inlet Invert Elevation (ft)	Outlet Invert Elevation (ft)	Average Slope (%)	Diameter or Height (in)	Manning's Roughness	Peak Flow (cfs)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Peak Flow Depth (ft)	Peak Flo Dept Total Dep Rat
92	R5	Channel	5	7	350.95	6319.56	6313.49	1.7300	6.000	0.0320	0.18	14.20	0.01	1.73	0.12	0.2
93	R6	Channel	6A	8	358.03	6319.80	6312.97	1.9100	6.000	0.0320	0.40	10.46	0.04	0.98	0.22	0.4
94	R7	Channel	7	10	334.48	6313.49	6311.61	0.5600	6.000	0.0320						
95	R8	Channel	8	9	269.01	6312.97	6312.14	0.3100	6.000	0.0320						
50	20A	Pipe	20A	20B	100.90	6351.90	6351.39	0.5100	15.000	0.0130						
51	20B	Pipe	20B	22A	193.94	6351.39	6350.41	0.5100	15.000	0.0130						
52	11C	Pipe	11C	14	96.80	6373.53	6366.45	7.3100	24.000	0.0130						
53	12	Pipe	12	11B	68.40	6392.09	6387.50	6.7100	24.000	0.0130						
54	11B	Pipe	11B	11C	129.10	6387.50	6373.53	10.8200	24.000	0.0130						
55	OFFSITE	Pipe	OFFSITE	12	169.40	6397.29	6392.09	3.0700	24.000	0.0130						
56	11A	Pipe	11A	11B	18.00	6388.43	6388.25	1.0000	18.000	0.0130						
57	Existing-1A	Pipe	Existing-1A	Existing-1B	101.50	6370.10	6366.42	3.6300	15.000	0.0130						
58	Existing-1B	Pipe	Existing-1B	Existing-1C	48.80	6366.42	6365.74	1.3900	15.000	0.0130						
59	Existing-1C	Pipe	Existing-1C	Existing-1D	65.40	6365.74	6365.41	0.5000	15.000	0.0130						
60	Existing-1D	Pipe	Existing-1D	15	140.90	6365.41	6364.44	0.6900	15.000	0.0130						
61	0	Pipe	0	2	12.70	6327.29	6326.46	6.5400	18.000	0.0130						
62	2	Pipe	2	1	19.50	6325.96	6325.69	1.3800	24.000	0.0130						
63	1	Pipe	1	4A	122.00	6325.69	6316.70	7.3700	24.000	0.0130						

Inlet Summary

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft²)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gu Spre during P Fl
1	1	FHWA HEC-22 GENERIC	N/A	On Grade	2	6325.69	6331.04	6325.69	N/A	0.63	0.01	0.62	1.59	6.00	2
2	3	FHWA HEC-22 GENERIC	N/A	On Grade	2	6319.88	6323.63	6319.88	N/A	0.44	0.44	0.00	100.00	6.00	1
3	4A	FHWA HEC-22 GENERIC	N/A	On Sag	1	6316.70	6321.70	6316.70	10.00	1.45	0.99	0.46	68.16	6.00	7
4	6A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6311.67	6319.80	6311.67	N/A	1.52	N/A	N/A	N/A	6.00	7
5	8	FHWA HEC-22 GENERIC	N/A	On Grade	1	6307.24	6312.97	6307.24	N/A	1.00	0.83	0.17	83.12	6.00	5
6	9	FHWA HEC-22 GENERIC	N/A	On Sag	2	6306.19	6312.14	6306.19	10.00	15.59	4.99	10.59	32.03	6.00	18
7	10	FHWA HEC-22 GENERIC	N/A	On Grade	1	6307.86	6311.61	6307.86	N/A	0.44	0.44	0.01	98.62	6.00	1
8	11A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6388.43	6392.18	6388.43	N/A	10.71	3.55	7.15	33.19	6.00	10
9	12	FHWA HEC-22 GENERIC	N/A	On Grade	1	6392.09	6397.09	6392.09	N/A	1.09	N/A	N/A	N/A	6.00	7
10	13	FHWA HEC-22 GENERIC	N/A	On Grade	1	6367.42	6371.17	6367.42	N/A	0.95	0.00	0.95	0.21	6.00	2
11	14	FHWA HEC-22 GENERIC	N/A	On Grade	1	6365.95	6371.17	6365.95	N/A	0.33	0.33	0.00	100.00	6.00	1
12	15	FHWA HEC-22 GENERIC	N/A	On Sag	1	6364.19	6368.38	6364.19	10.00	7.19	4.72	2.47	65.66	6.00	8
13	16A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6364.07	6368.38	6364.07	N/A	0.92	0.72	0.20	78.23	6.00	6
14	17	FHWA HEC-22 GENERIC	N/A	On Grade	1	6353.35	6357.10	6353.35	N/A	1.44	N/A	N/A	N/A	6.00	8
15	18	FHWA HEC-22 GENERIC	N/A	On Grade	2	6351.38	6357.10	6351.38	N/A	0.43	0.43	0.00	100.00	6.00	1
16	19	FHWA HEC-22 GENERIC	N/A	On Grade	1	6352.04	6355.79	6352.04	N/A	2.79	1.90	0.89	68.13	6.00	5
17	20A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6351.90	6355.85	6351.90	N/A	0.97	N/A	N/A	N/A	6.00	6
18	21	FHWA HEC-22 GENERIC	N/A	On Sag	1	6350.40	6354.40	6350.40	10.00	0.54	0.48	0.06	89.42	6.00	4
19	22A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6349.66	6354.41	6349.66	N/A	0.69	0.00	0.69	0.21	6.00	2
20	23	FHWA HEC-22 GENERIC	N/A	On Grade	1	6339.33	6343.08	6339.33	N/A	0.86	0.00	0.86	0.19	6.00	2
21	24	FHWA HEC-22 GENERIC	N/A	On Grade	1	6337.14	6343.08	6337.14	N/A	1.15	0.84	0.31	73.37	6.00	7
22	25	FHWA HEC-22 GENERIC	N/A	On Sag	1	6336.99	6340.74	6336.99	10.00	2.33	1.49	0.83	64.17	6.00	8
23	26A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6336.49	6340.75	6336.49	N/A	0.76	N/A	N/A	N/A	6.00	5
24	27	FHWA HEC-22 GENERIC	N/A	On Grade	1	6324.03	6327.78	6324.03	N/A	1.61	1.28	0.33	79.52	6.00	5
25	28	FHWA HEC-22 GENERIC	N/A	On Grade	1	6321.26	6326.76	6321.26	N/A	0.46	0.46	0.00	100.00	6.00	1
26	2	FHWA HEC-22 GENERIC	N/A	On Grade	2	6325.96	6331.21	6325.96	N/A						
27	30A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6323.67	6327.93	6323.67	N/A						
28	32	FHWA HEC-22 GENERIC	N/A	On Grade	1	6319.96	6324.69	6319.96	N/A						

Subbasin Hydrology

Subbasin : 001

Input Data

Area (ac) 0.33
Peak Rate Factor 484
Weighted Curve Number 90
Rain Gage ID ..... *

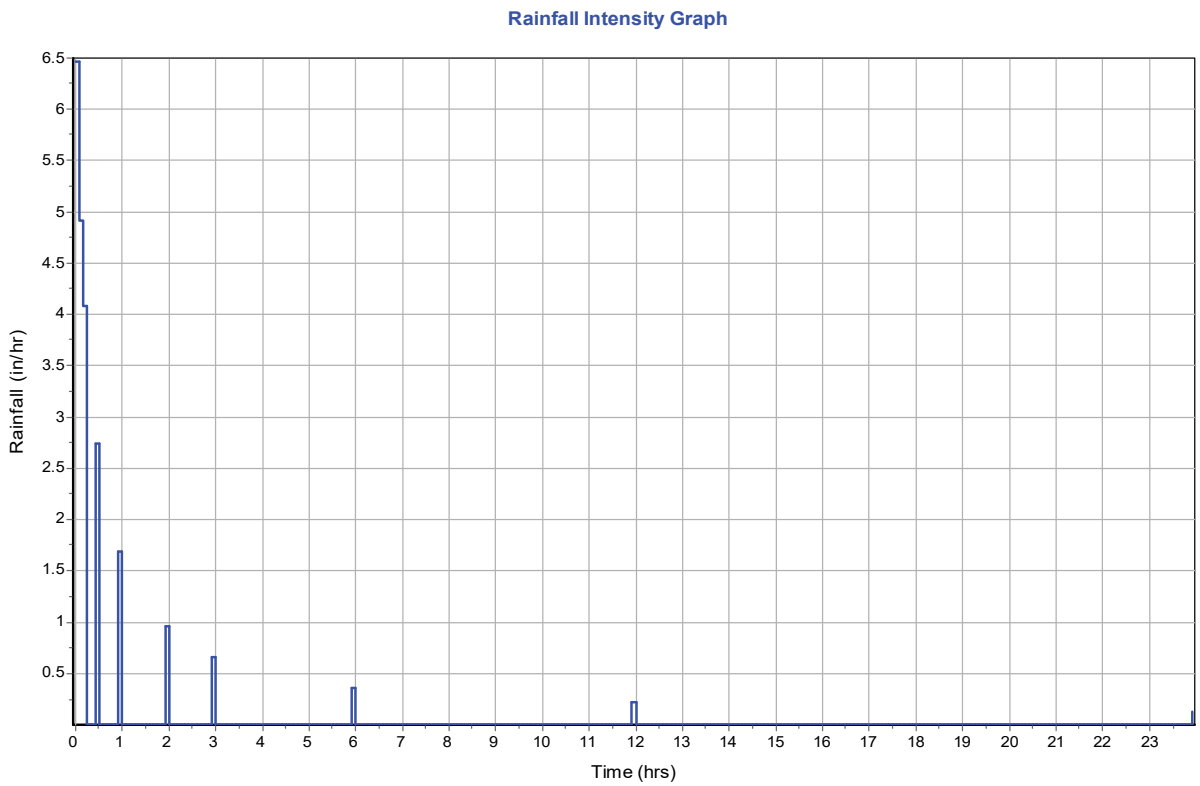
Composite Curve Number

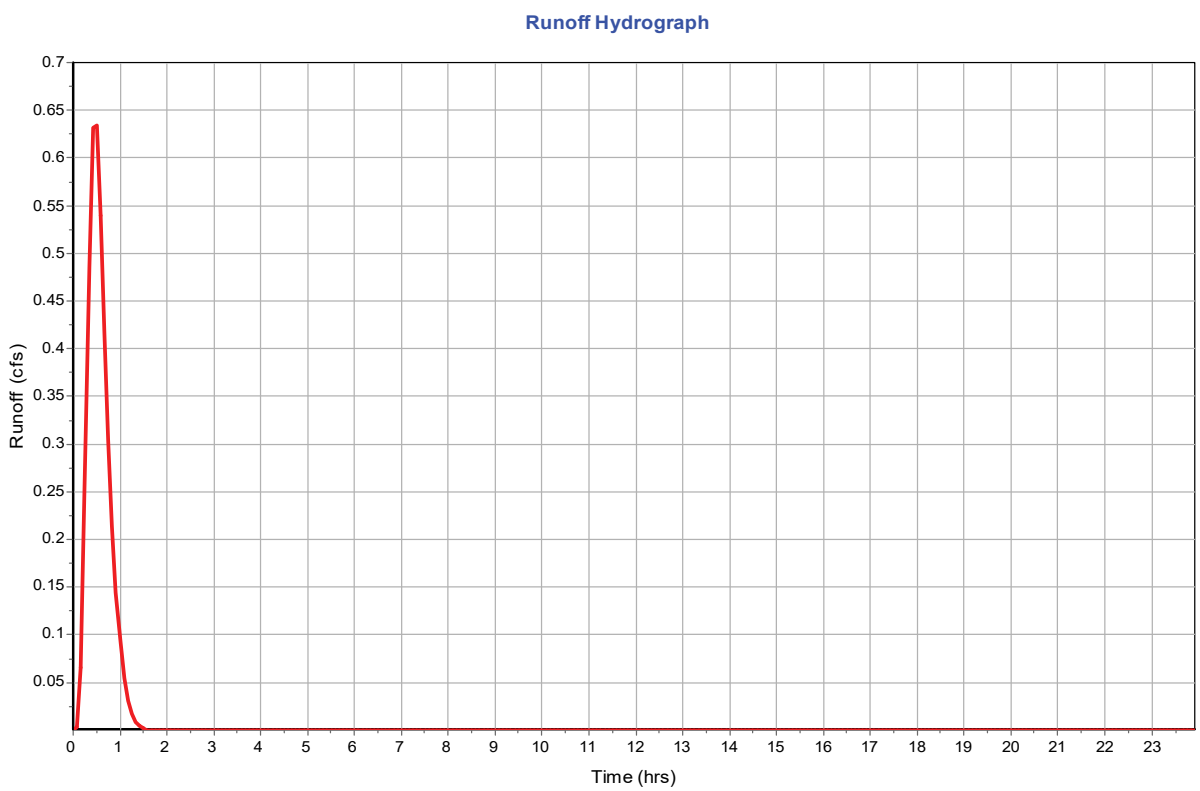
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.33	-	90
Composite Area & Weighted CN	0.33		90

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.97
Peak Runoff (cfs) 0.65
Weighted Curve Number 90
Time of Concentration (days hh:mm:ss) 0 00:22:00

Subbasin : 001





Subbasin : 002

Input Data

Area (ac) 1.49
Peak Rate Factor 484
Weighted Curve Number 86.5
Rain Gage ID ..... *

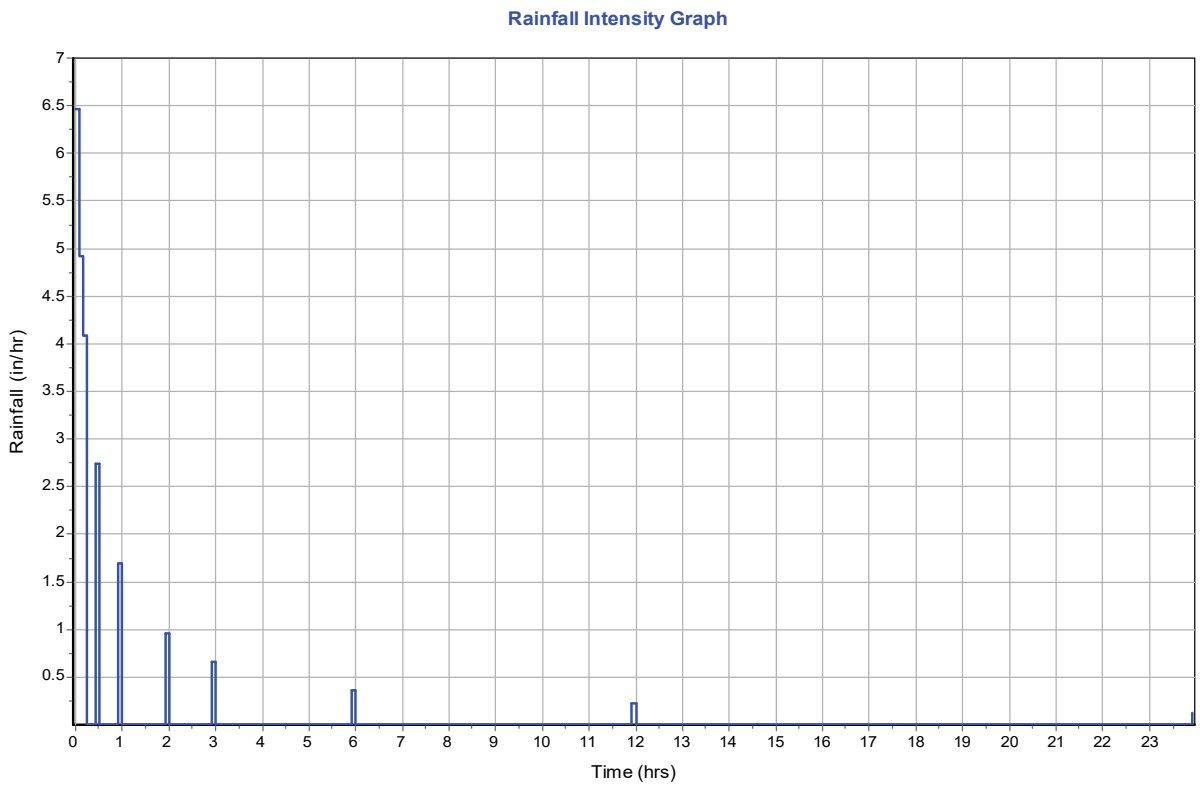
Composite Curve Number

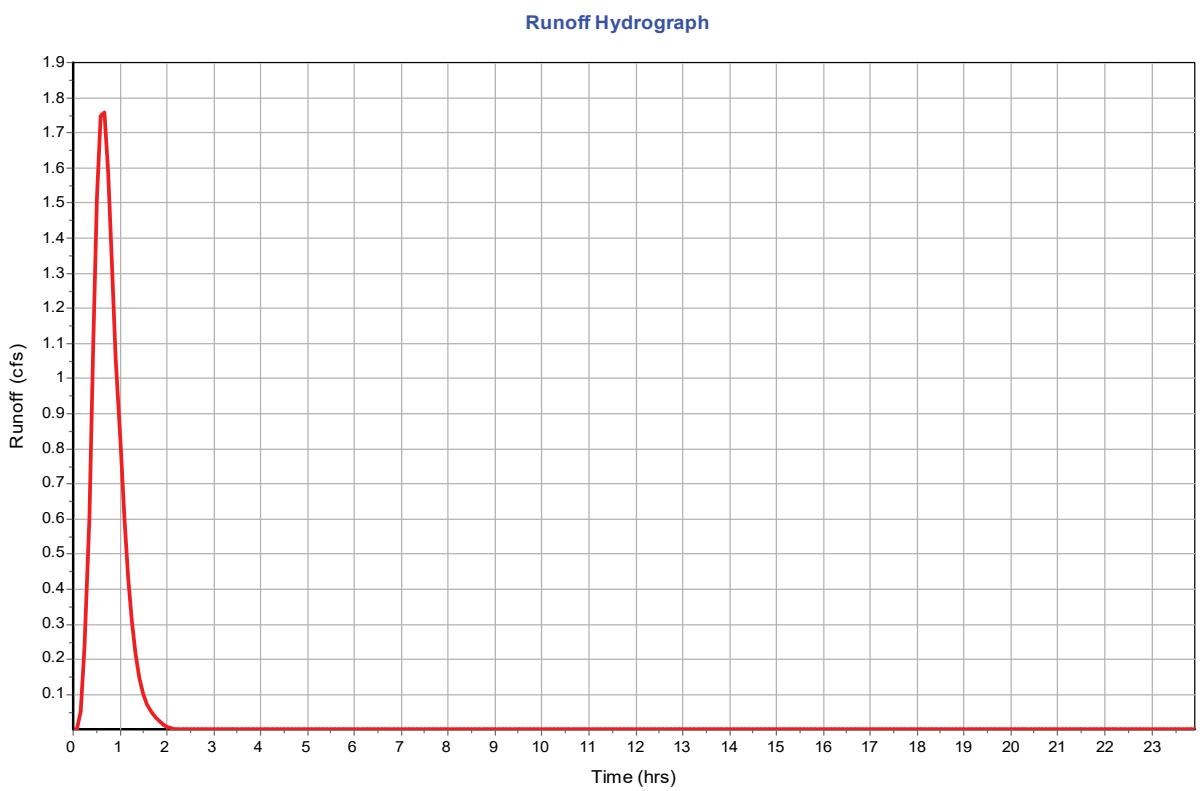
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.49	-	86.5
Composite Area & Weighted CN	1.49		86.5

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.76
Peak Runoff (cfs) 1.79
Weighted Curve Number 86.5
Time of Concentration (days hh:mm:ss) 0 00:35:00

Subbasin : 002





Subbasin : 003

Input Data

Area (ac) 0.23
Peak Rate Factor 484
Weighted Curve Number 90
Rain Gage ID ..... *

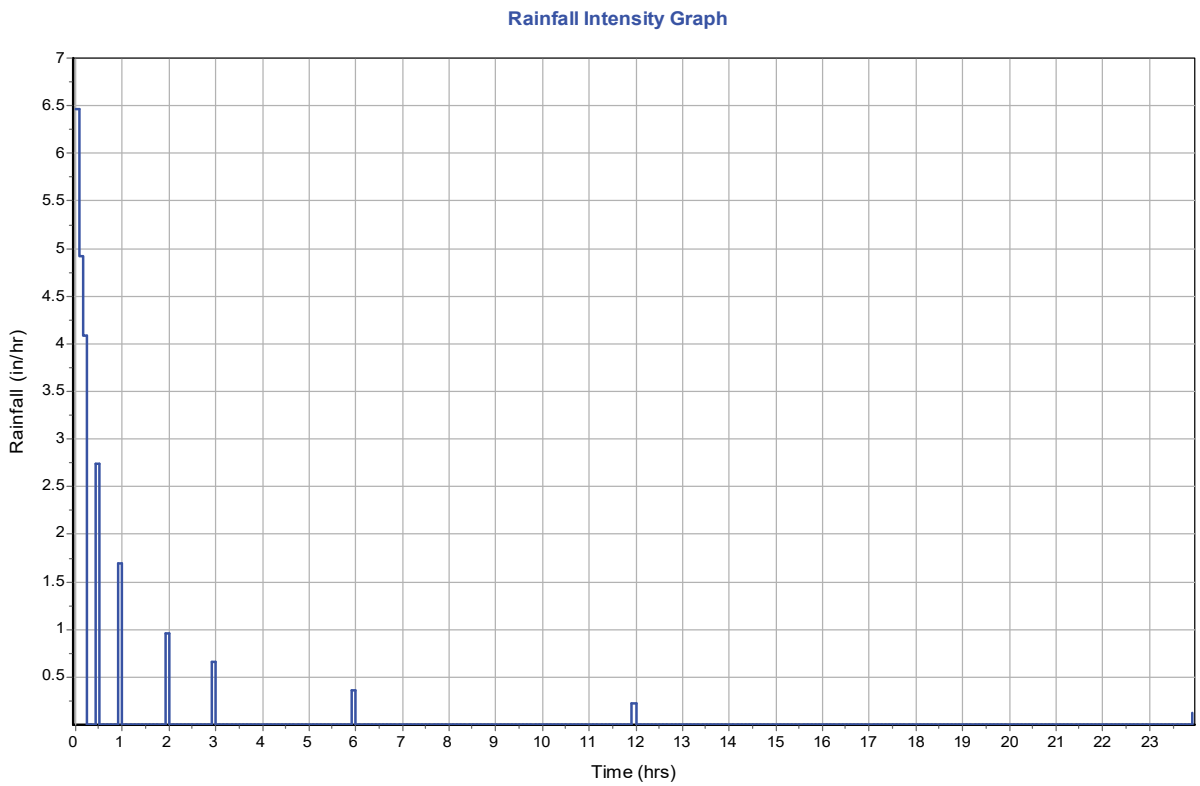
Composite Curve Number

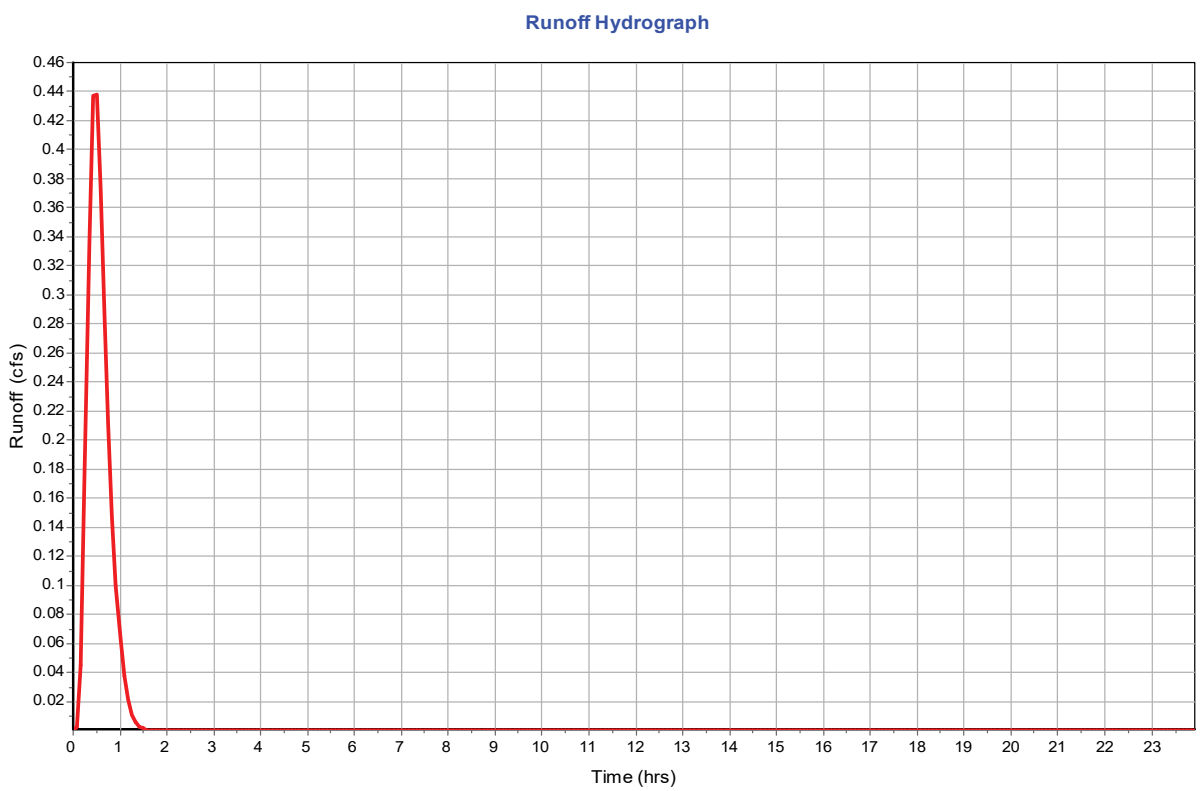
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.23	-	90
Composite Area & Weighted CN	0.23		90

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.97
Peak Runoff (cfs) 0.45
Weighted Curve Number 90
Time of Concentration (days hh:mm:ss) 0 00:22:00

Subbasin : 003





Subbasin : 005

Input Data

Area (ac) 0.26
Peak Rate Factor 484
Weighted Curve Number 90
Rain Gage ID ..... *

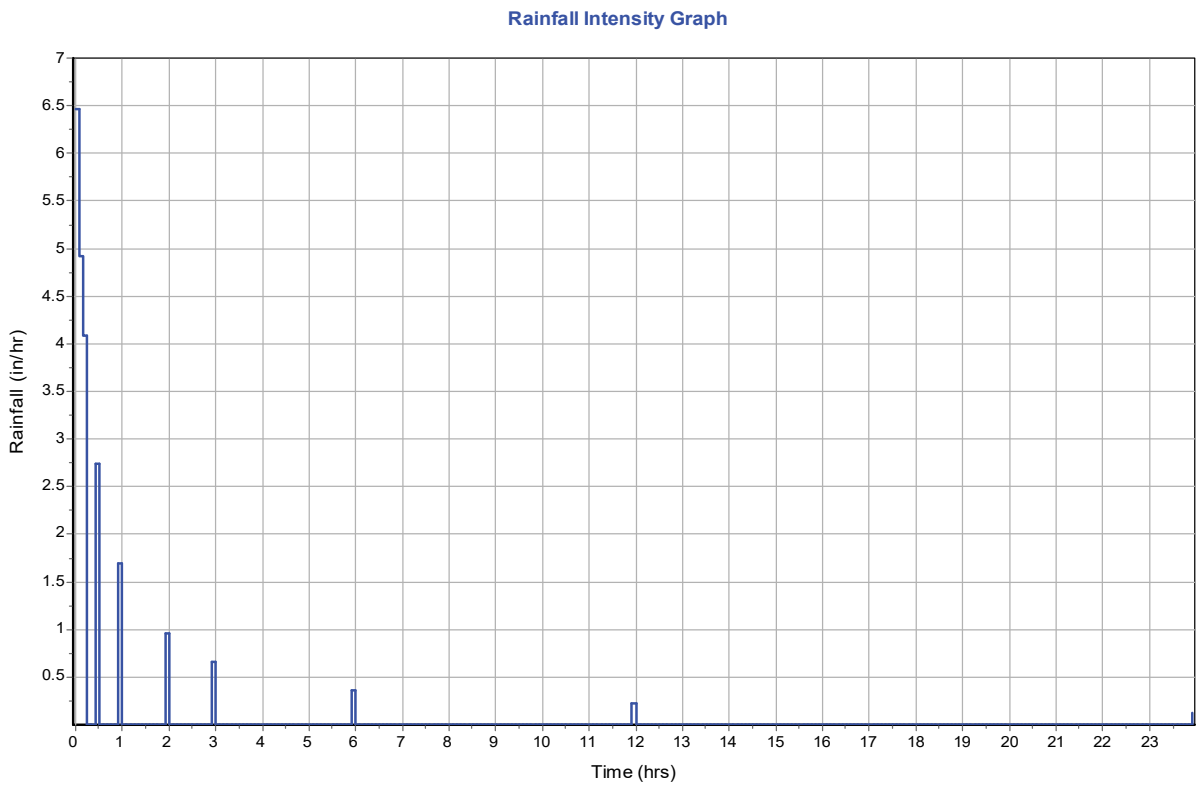
Composite Curve Number

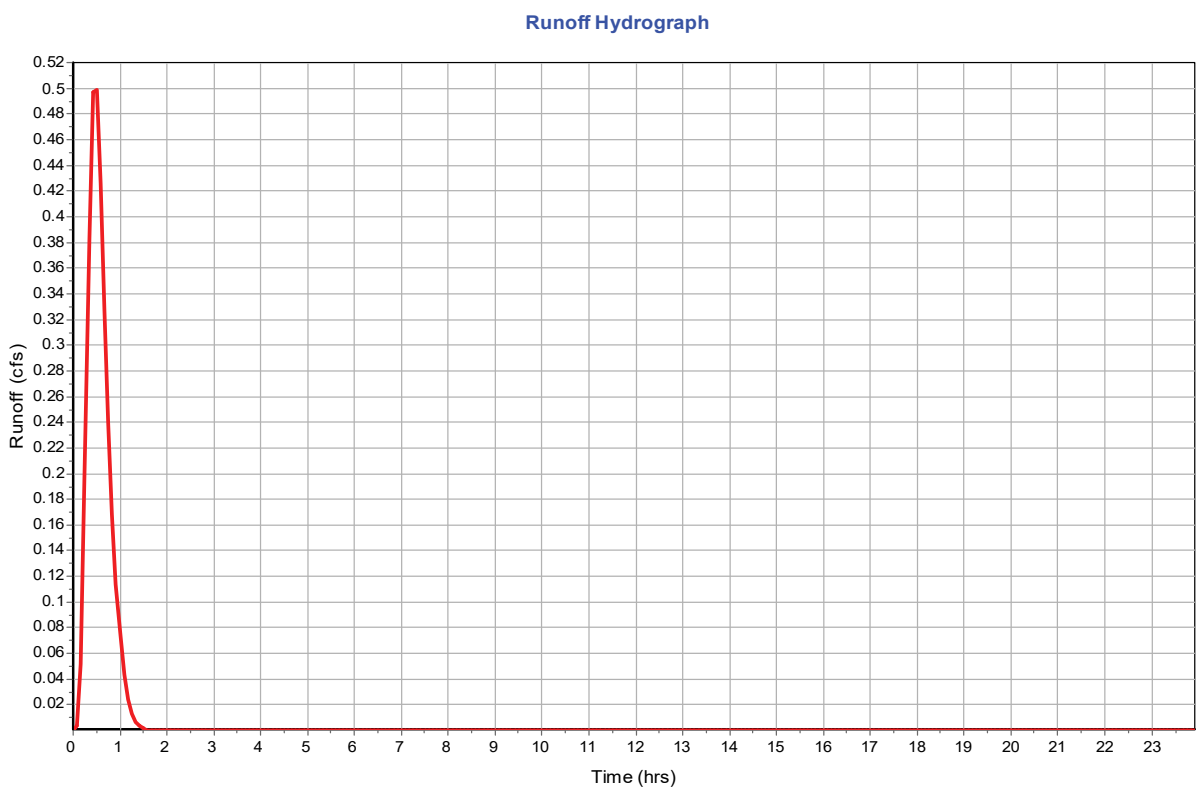
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.26	-	90
Composite Area & Weighted CN	0.26		90

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.97
Peak Runoff (cfs) 0.51
Weighted Curve Number 90
Time of Concentration (days hh:mm:ss) 0 00:22:00

Subbasin : 005





Subbasin : 006

Input Data

Area (ac) 0.64
Peak Rate Factor 484
Weighted Curve Number 86.5
Rain Gage ID ..... *

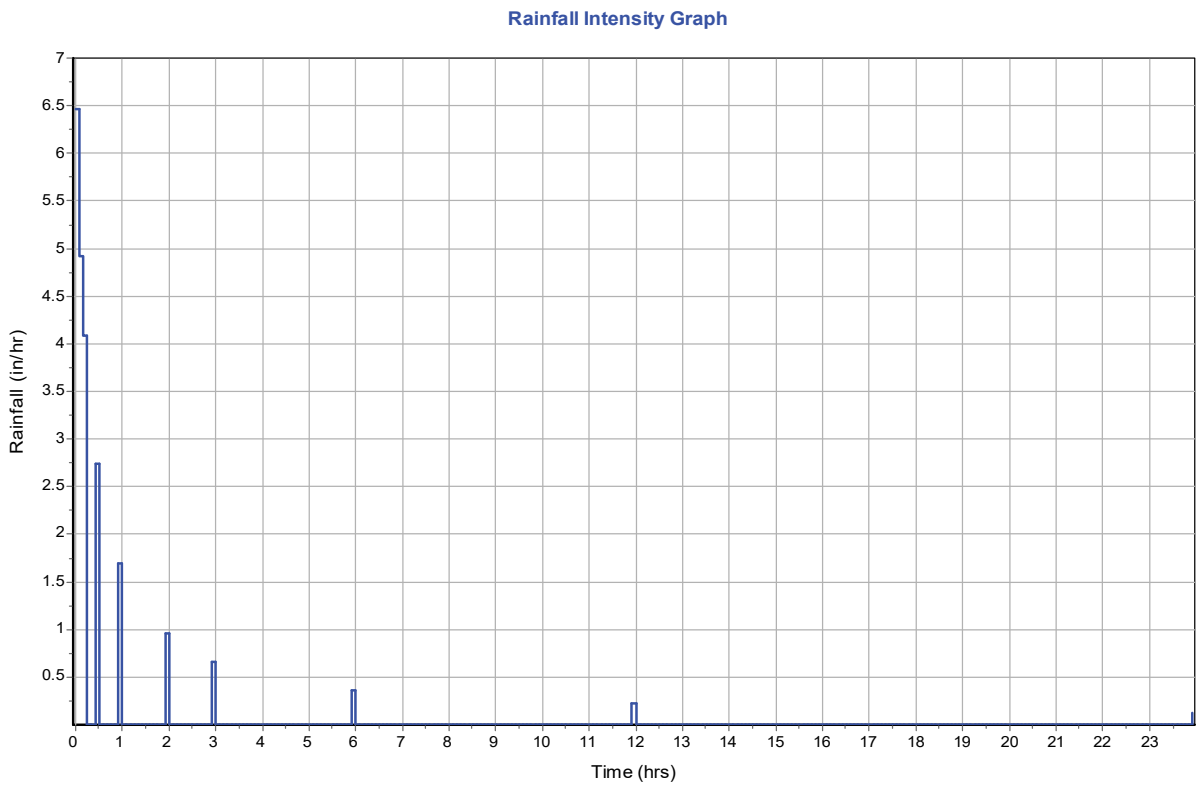
Composite Curve Number

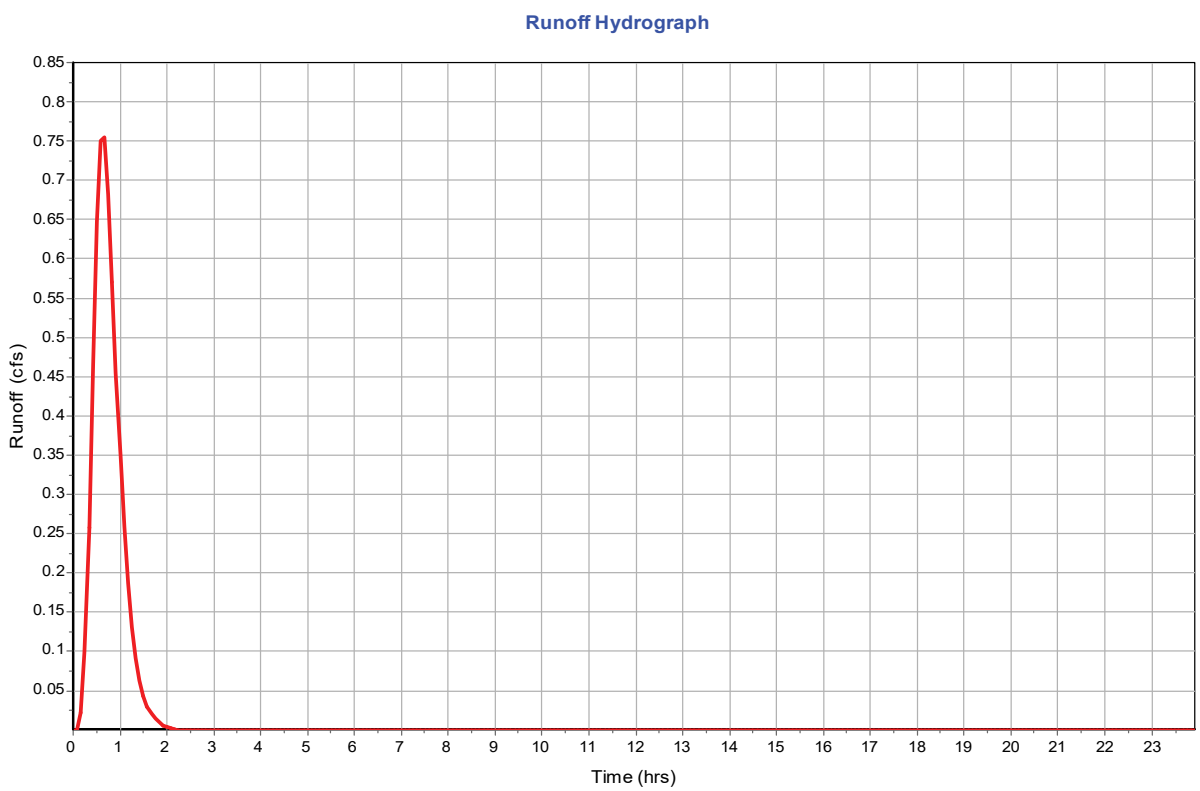
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.64	-	86.5
Composite Area & Weighted CN	0.64		86.5

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.76
Peak Runoff (cfs) 0.77
Weighted Curve Number 86.5
Time of Concentration (days hh:mm:ss) 0 00:35:00

Subbasin : 006





Subbasin : 007

Input Data

Area (ac) 0.44
Peak Rate Factor 484
Weighted Curve Number 90
Rain Gage ID ..... *

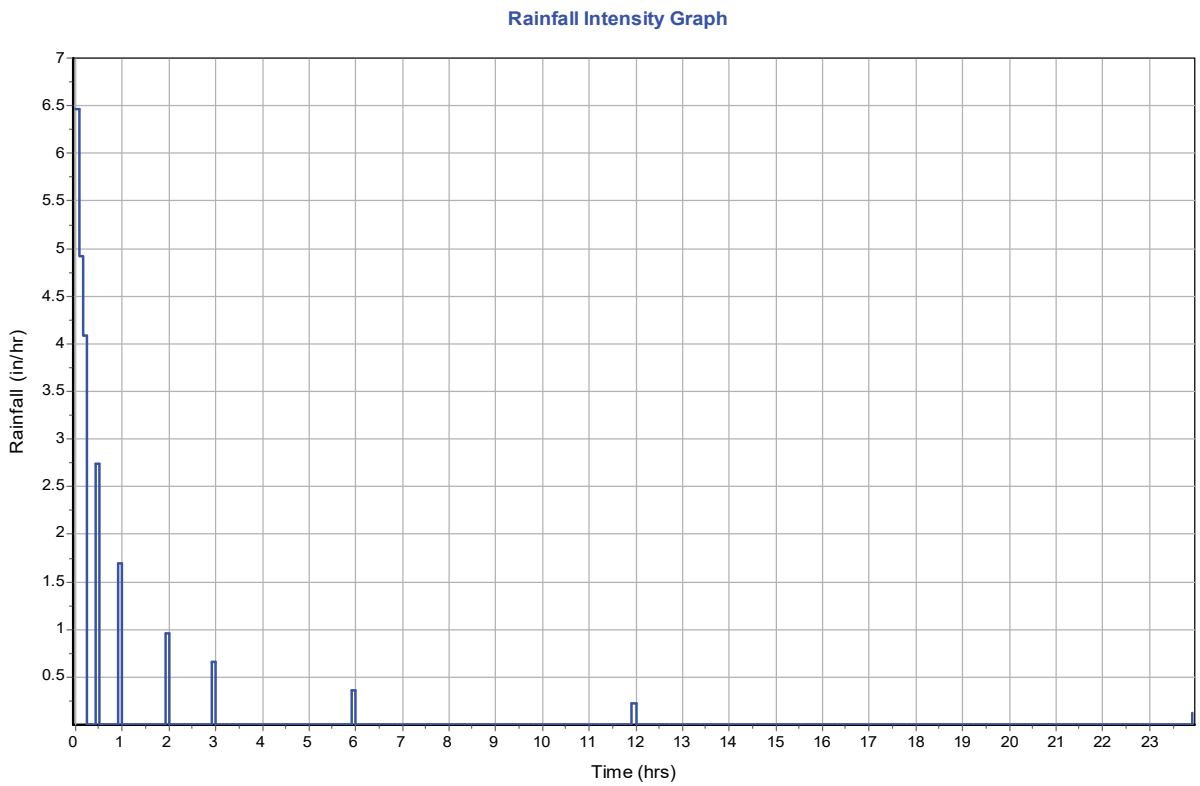
Composite Curve Number

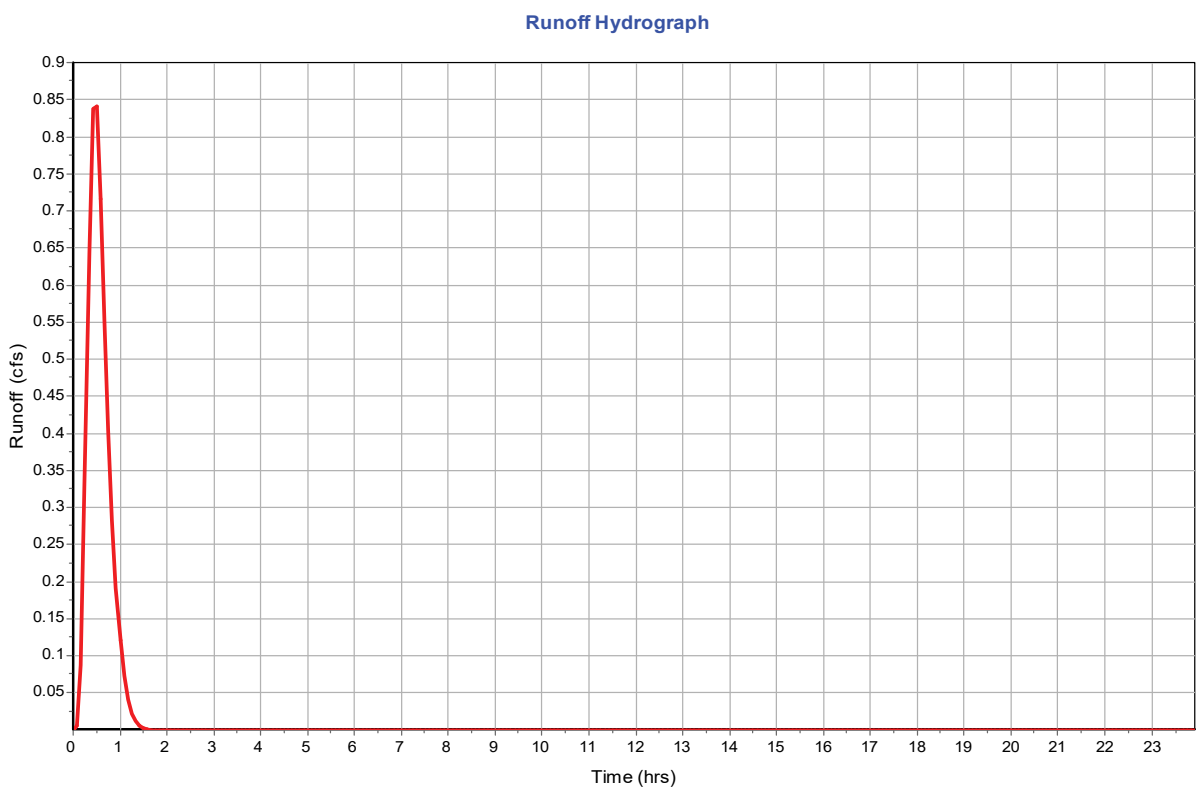
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.44	-	90
Composite Area & Weighted CN	0.44		90

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.97
Peak Runoff (cfs) 0.86
Weighted Curve Number 90
Time of Concentration (days hh:mm:ss) 0 00:22:00

Subbasin : 007





Subbasin : 008

Input Data

Area (ac) 1.11
Peak Rate Factor 484
Weighted Curve Number 86.5
Rain Gage ID ..... *

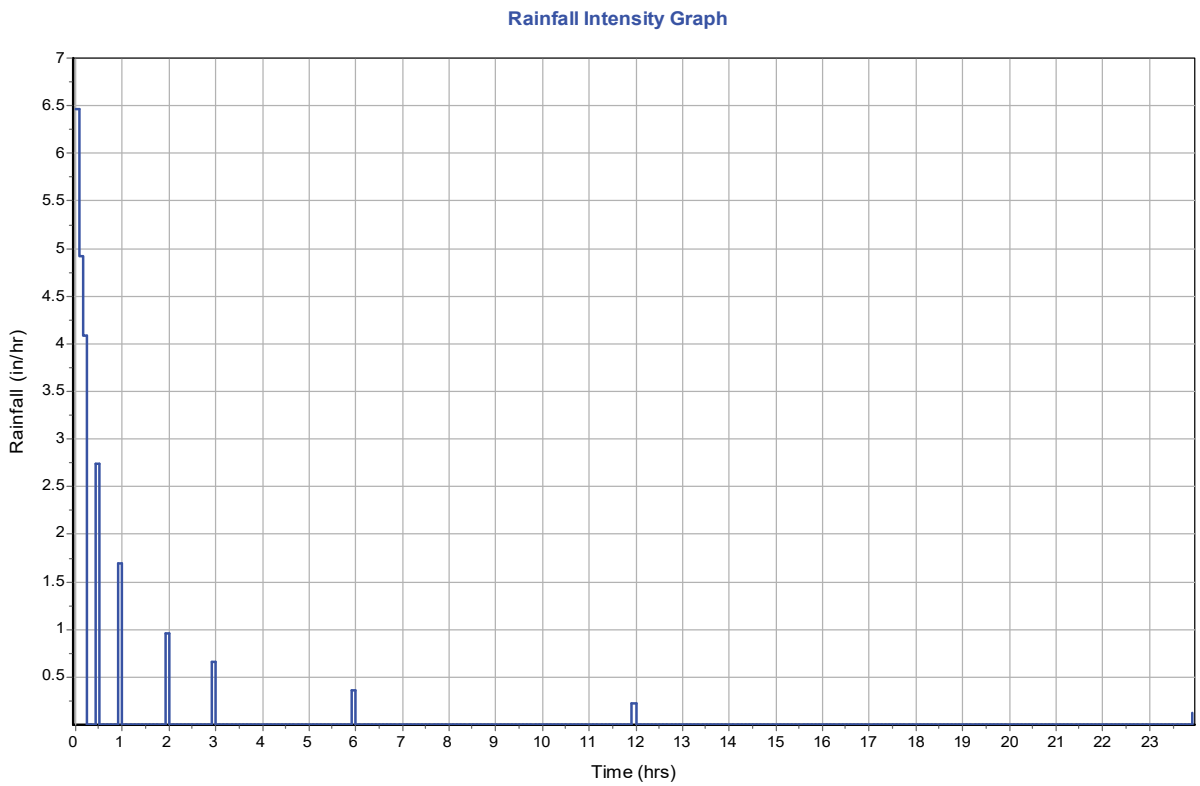
Composite Curve Number

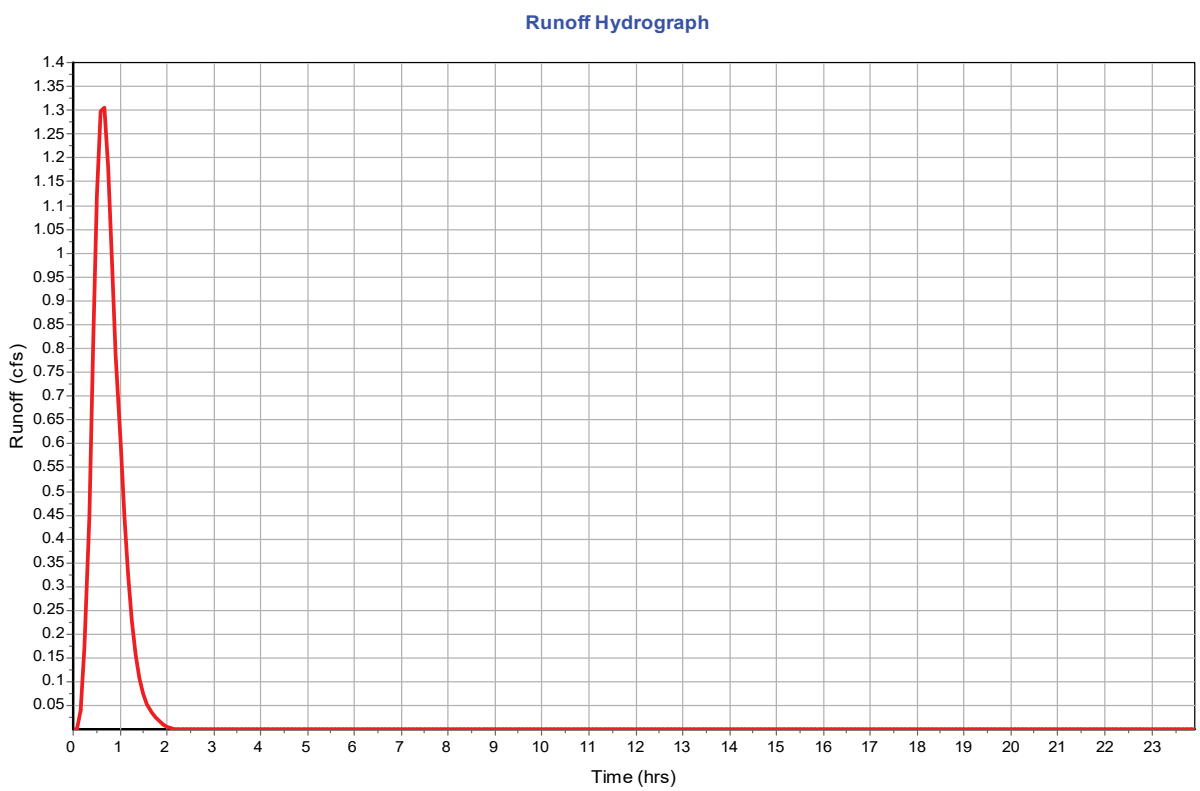
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.11	-	86.5
Composite Area & Weighted CN	1.11		86.5

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.76
Peak Runoff (cfs) 1.33
Weighted Curve Number 86.5
Time of Concentration (days hh:mm:ss) 0 00:35:00

Subbasin : 008





Subbasin : 009

Input Data

Area (ac) 0.95
Peak Rate Factor 484
Weighted Curve Number 86.5
Rain Gage ID ..... *

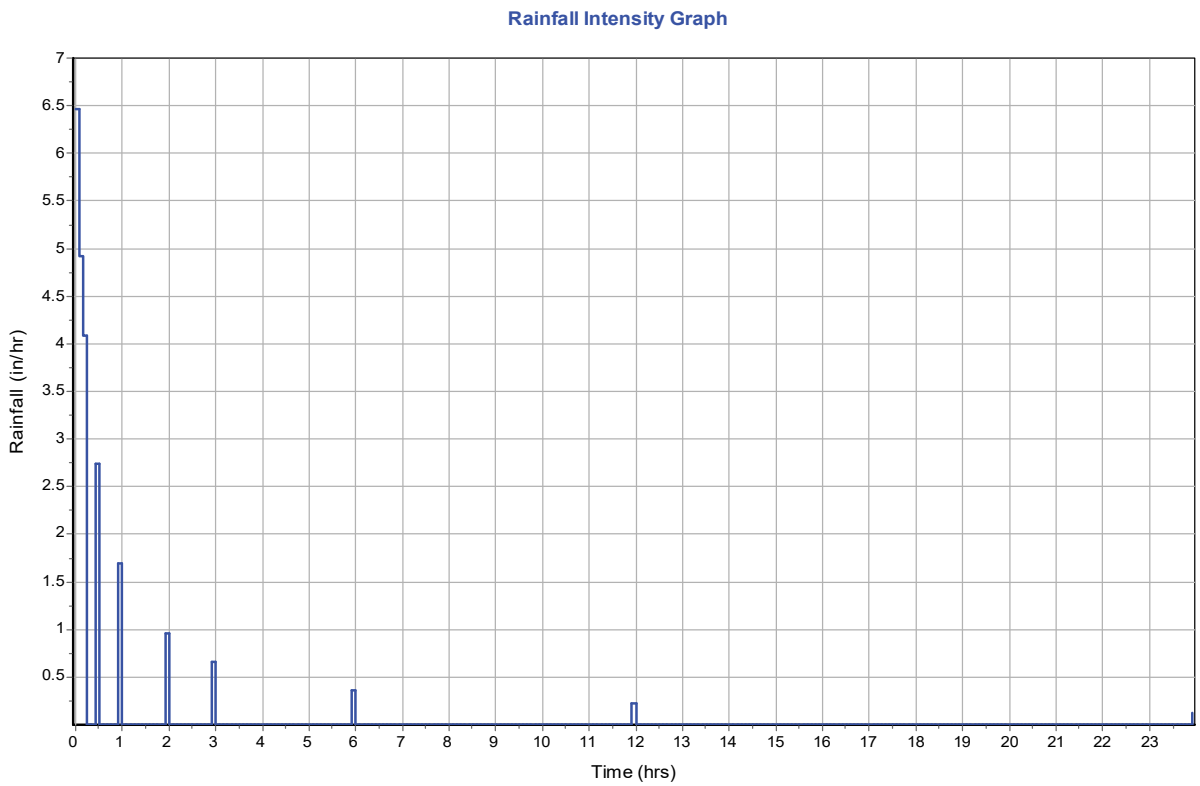
Composite Curve Number

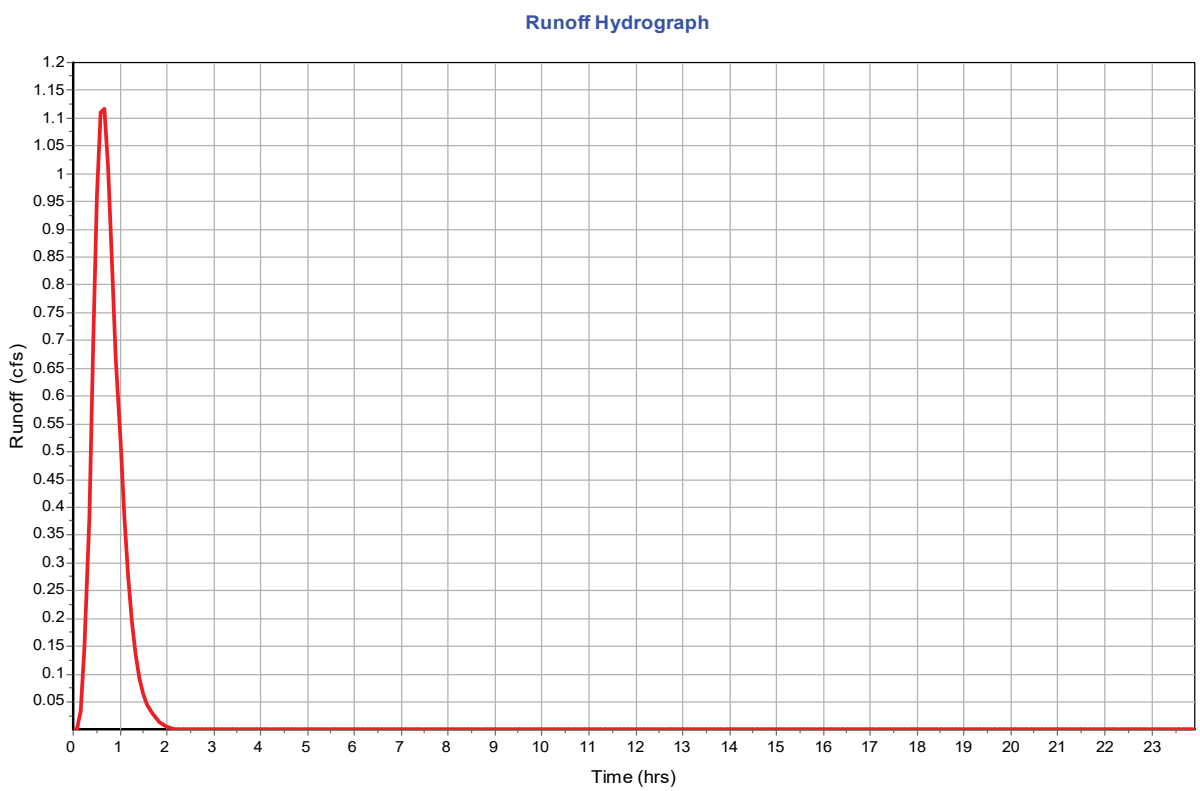
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.43	-	86.5
Composite Area & Weighted CN	0.43		86.5

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.76
Peak Runoff (cfs) 1.13
Weighted Curve Number 86.5
Time of Concentration (days hh:mm:ss) 0 00:35:00

Subbasin : 009





Subbasin : 010

Input Data

Area (ac) 0.43
Peak Rate Factor 484
Weighted Curve Number 90
Rain Gage ID ..... *

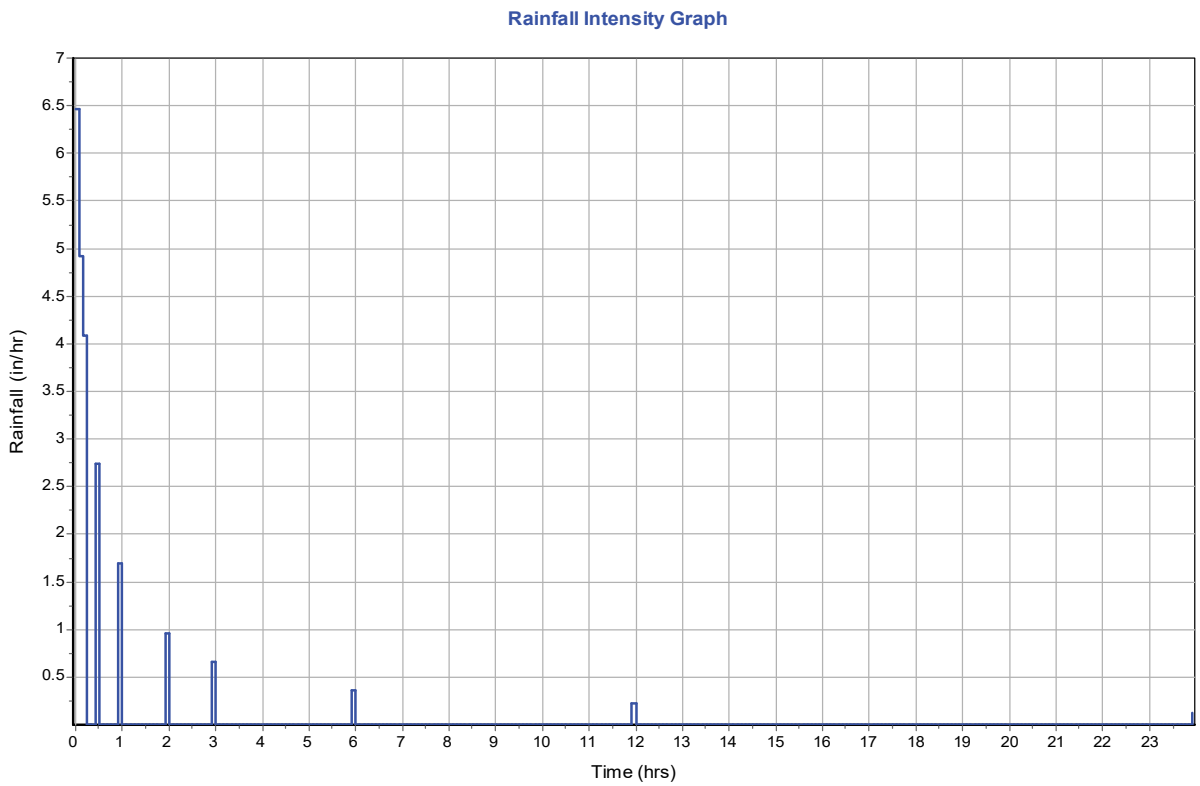
Composite Curve Number

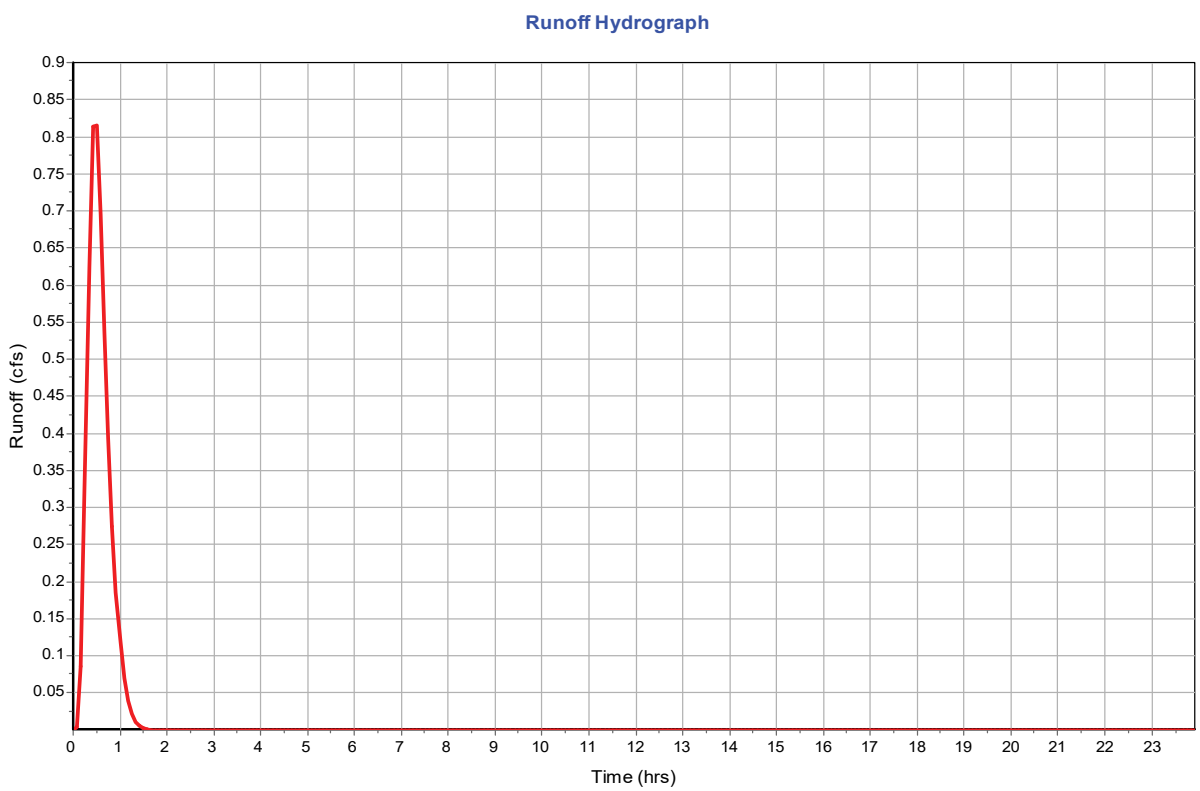
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.95	-	90
Composite Area & Weighted CN	0.95		90

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 0.97
Peak Runoff (cfs) 0.84
Weighted Curve Number 90
Time of Concentration (days hh:mm:ss) 0 00:22:00

Subbasin : 010





Subbasin : 011

Input Data

Area (ac) 0.14
Peak Rate Factor 484
Weighted Curve Number 98
Rain Gage ID ..... *

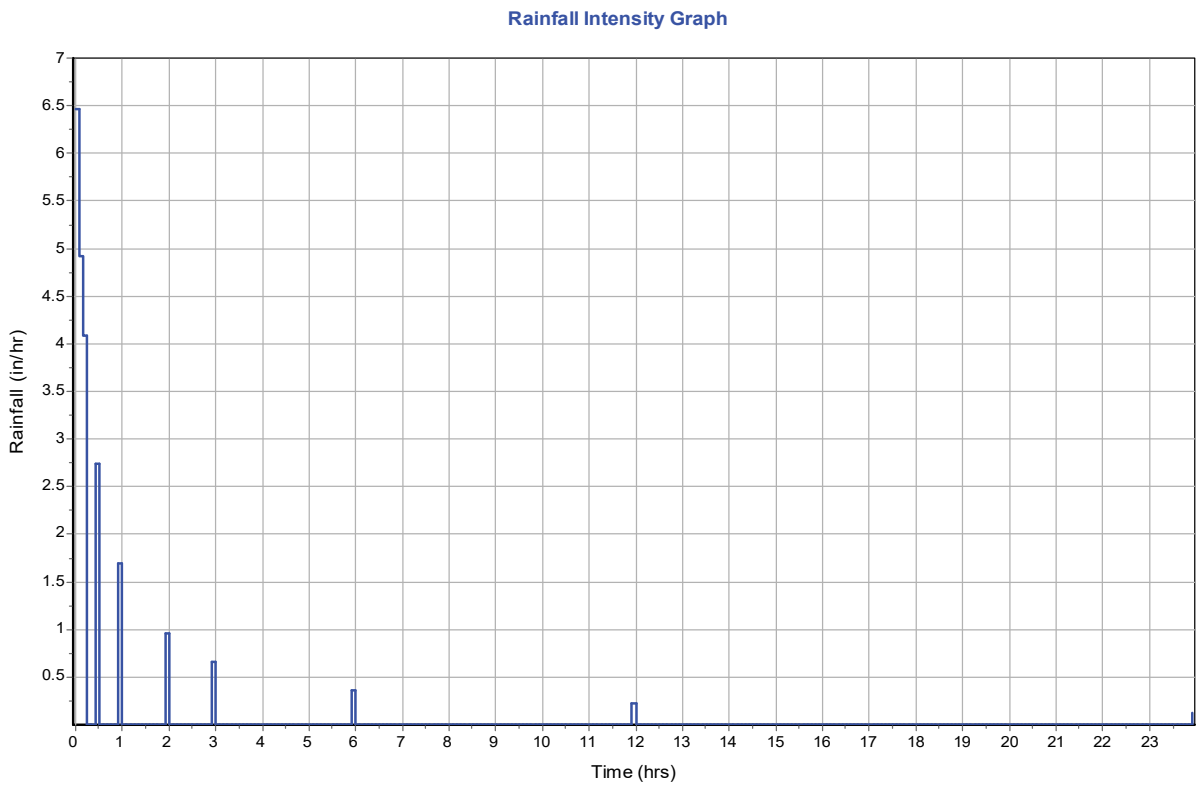
Composite Curve Number

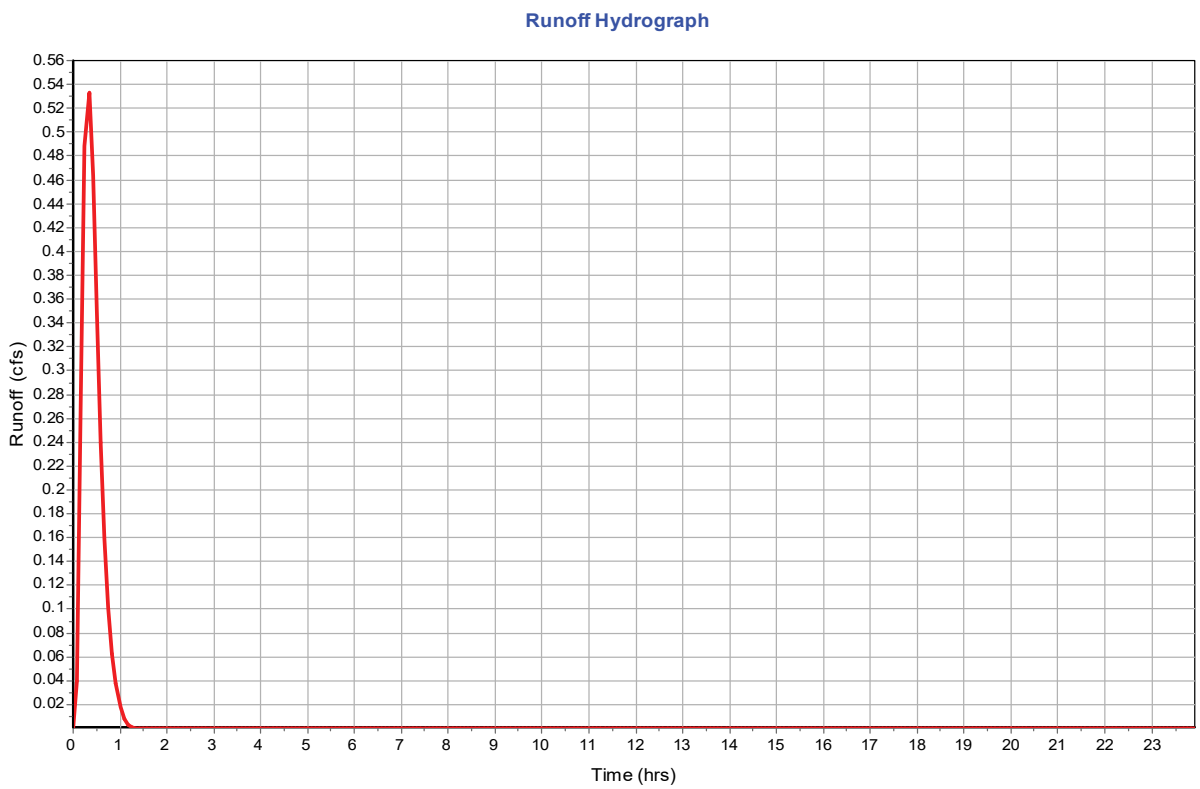
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.14	-	98
Composite Area & Weighted CN	0.14		98

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 1.63
Peak Runoff (cfs) 0.54
Weighted Curve Number 98
Time of Concentration (days hh:mm:ss) 0 00:15:00

Subbasin : 011





Subbasin : 012

Input Data

Area (ac) 0.13
Peak Rate Factor 484
Weighted Curve Number 98
Rain Gage ID ..... *

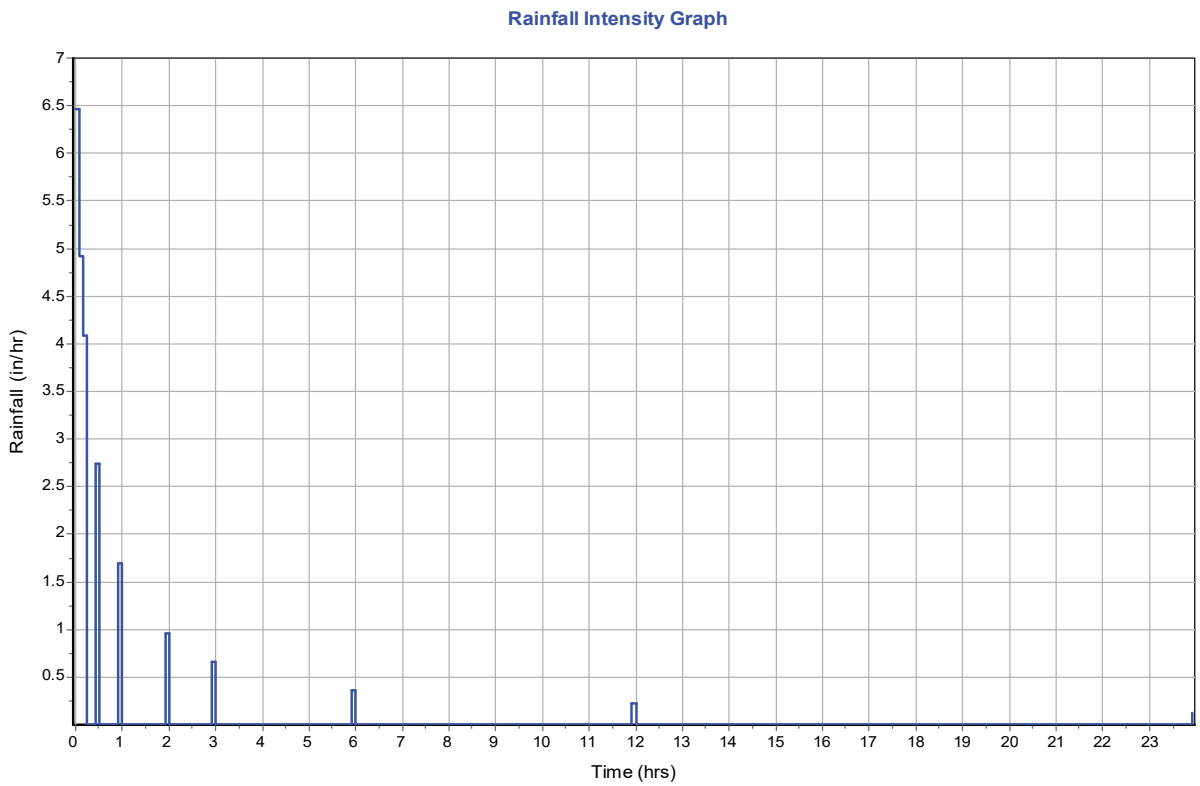
Composite Curve Number

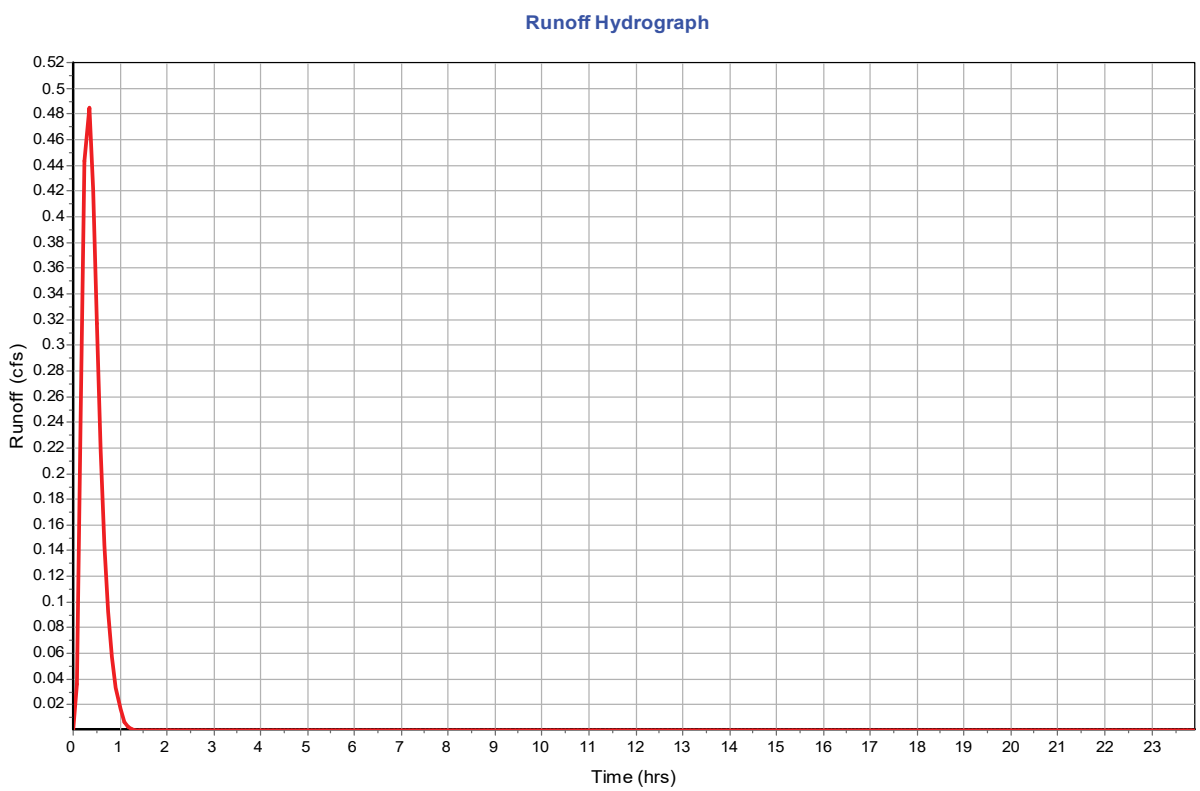
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.13	-	98
Composite Area & Weighted CN	0.13		98

Subbasin Runoff Results

Total Rainfall (in) 1.85
Total Runoff (in) 1.63
Peak Runoff (cfs) 0.49
Weighted Curve Number 98
Time of Concentration (days hh:mm:ss) 0 00:15:00

Subbasin : 012





Subbasin : 013

Input Data

Area (ac)	0.11
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

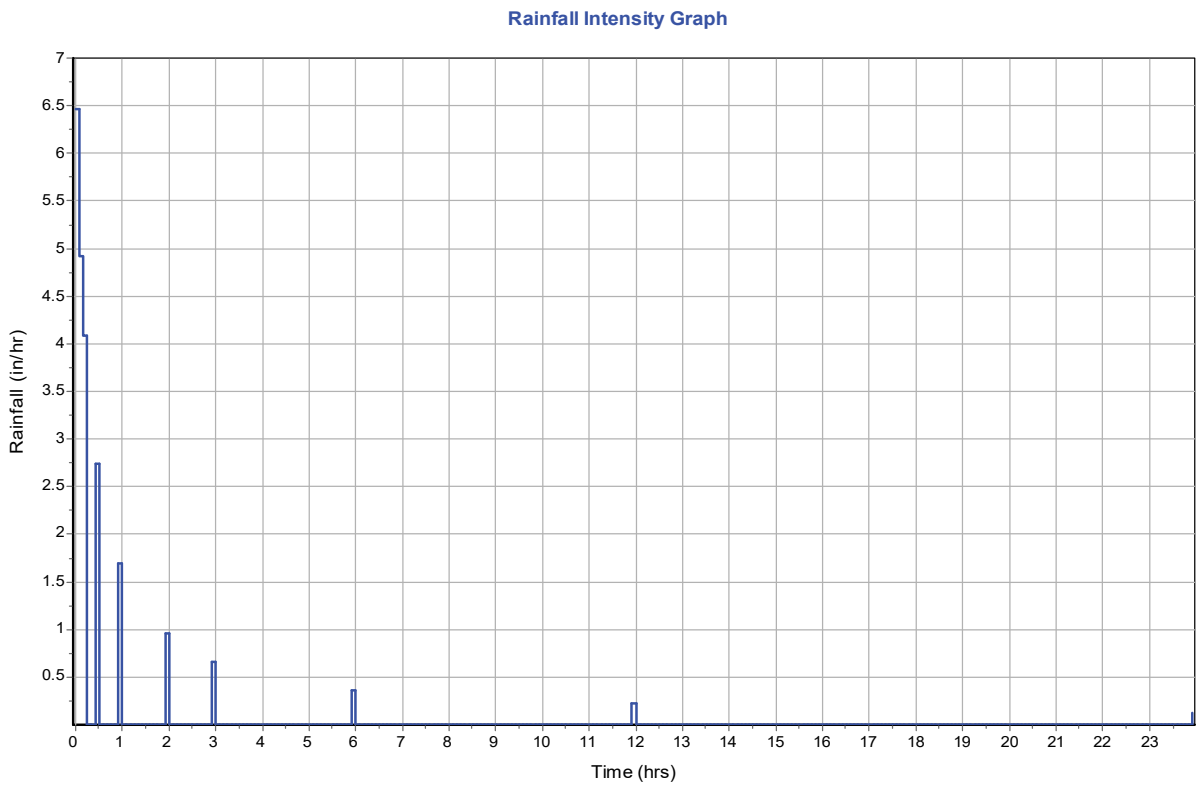
Composite Curve Number

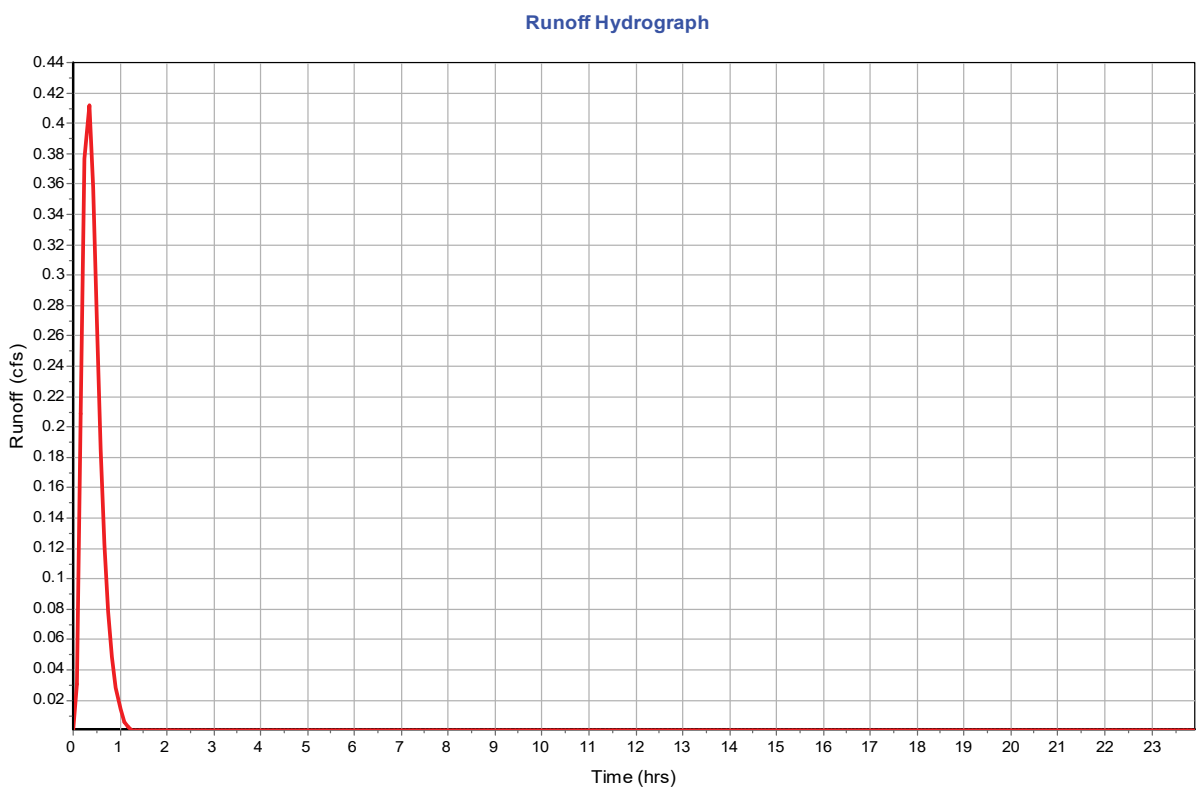
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.11	-	98
Composite Area & Weighted CN	0.11		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.41
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 013





Subbasin : 014

Input Data

Area (ac)	0.1
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

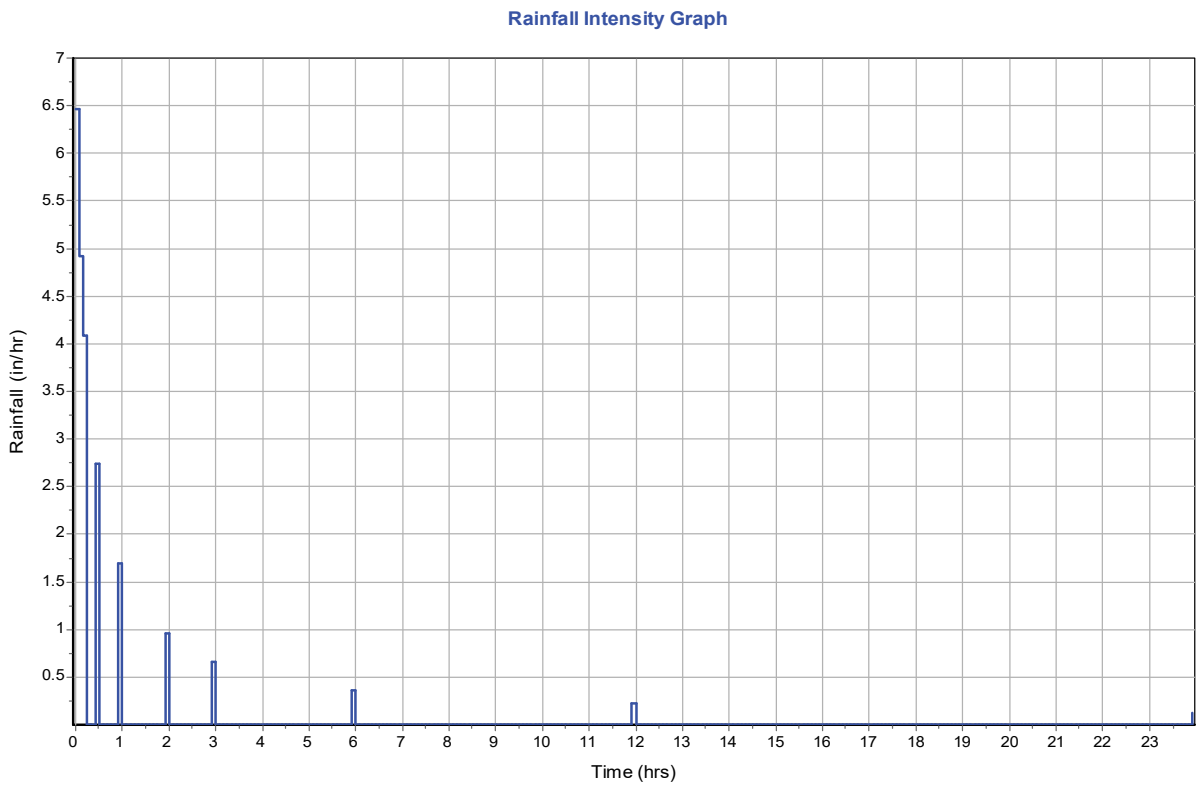
Composite Curve Number

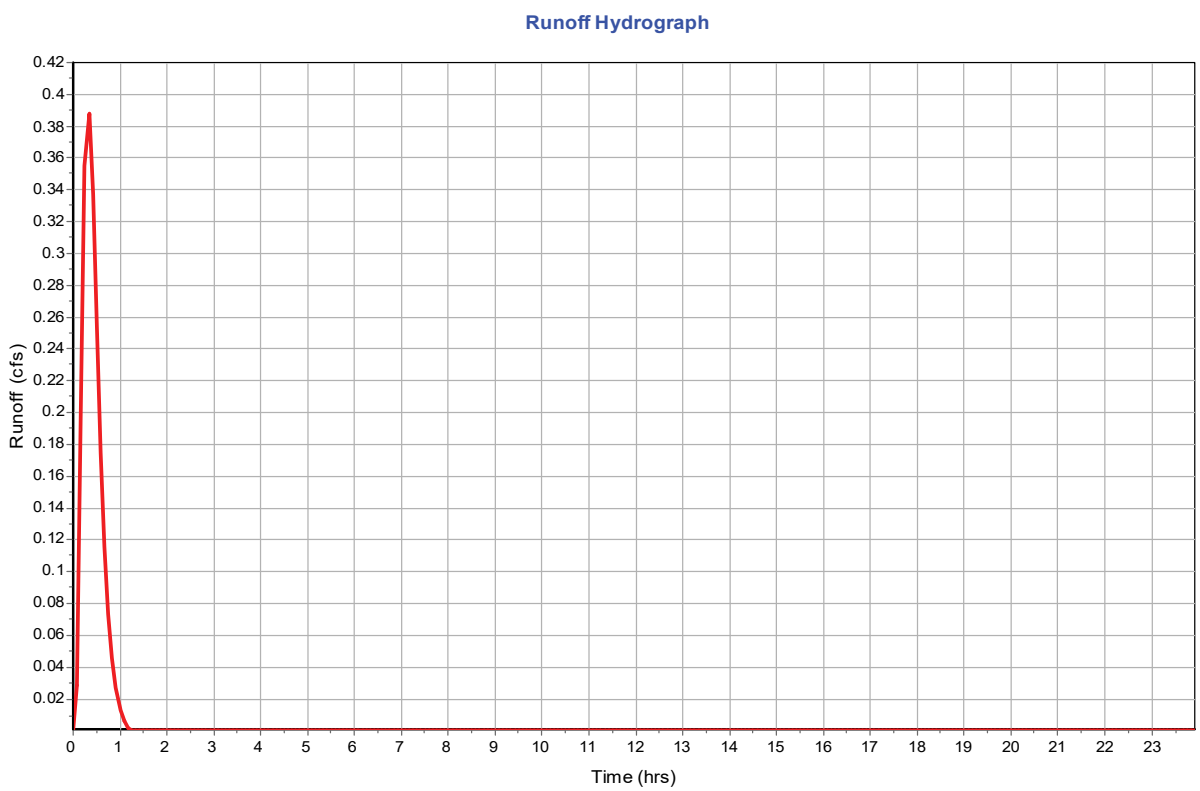
32	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
-	0.1	-	98
Composite Area & Weighted CN	0.1		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.39
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 014





Subbasin : 015

Input Data

Area (ac)	0.28
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

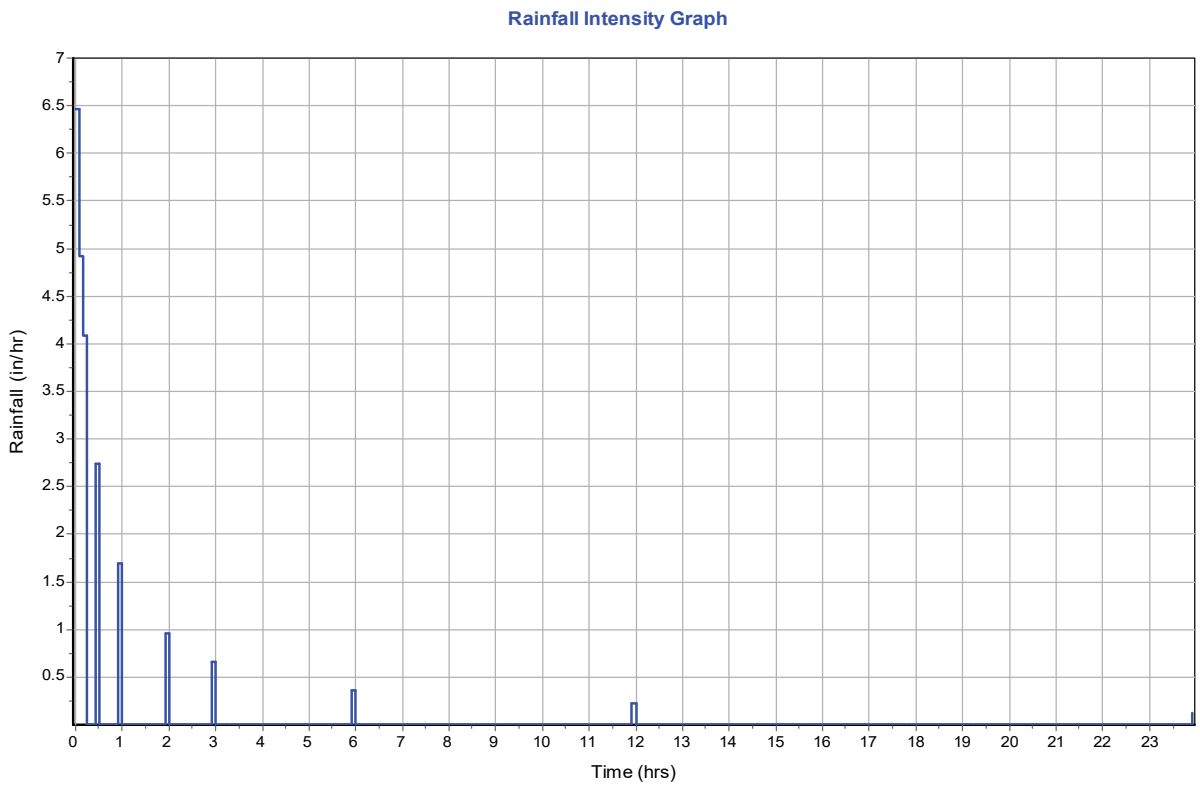
Composite Curve Number

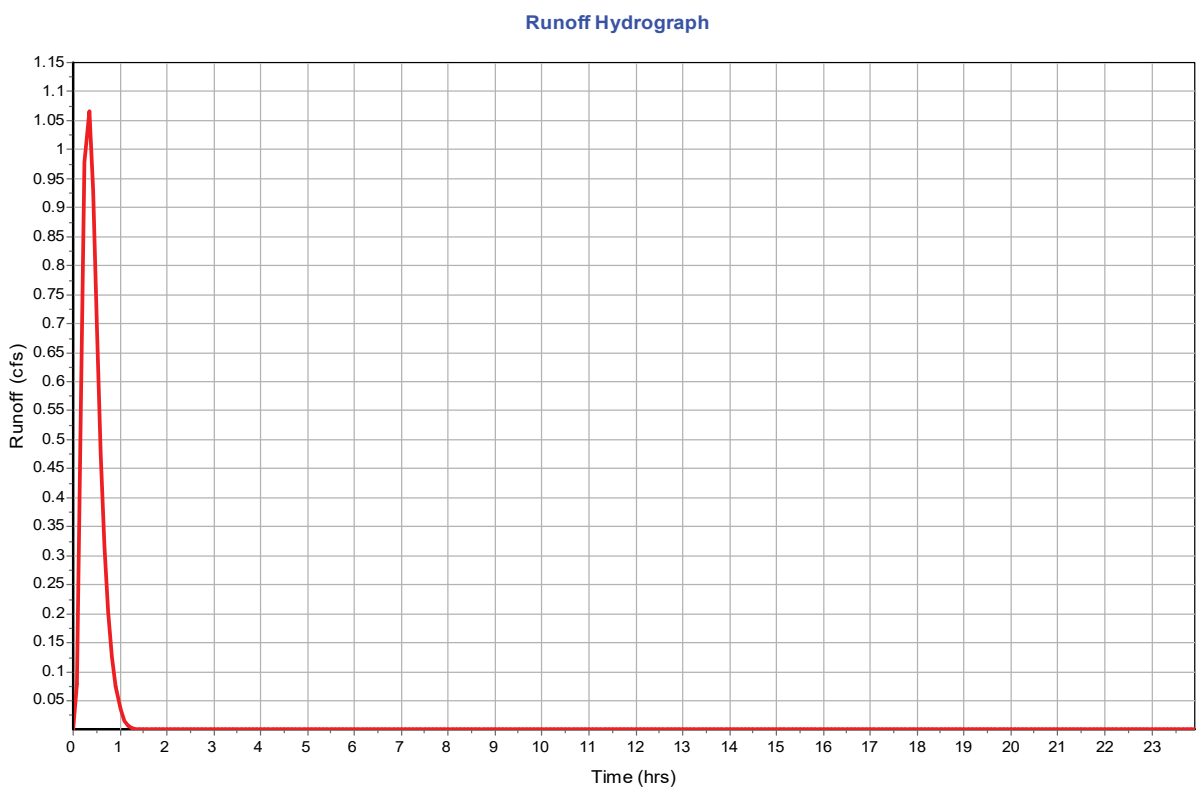
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.28	-	98
Composite Area & Weighted CN	0.28		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	1.07
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 015





Subbasin : 017

Input Data

Area (ac)	0.08
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

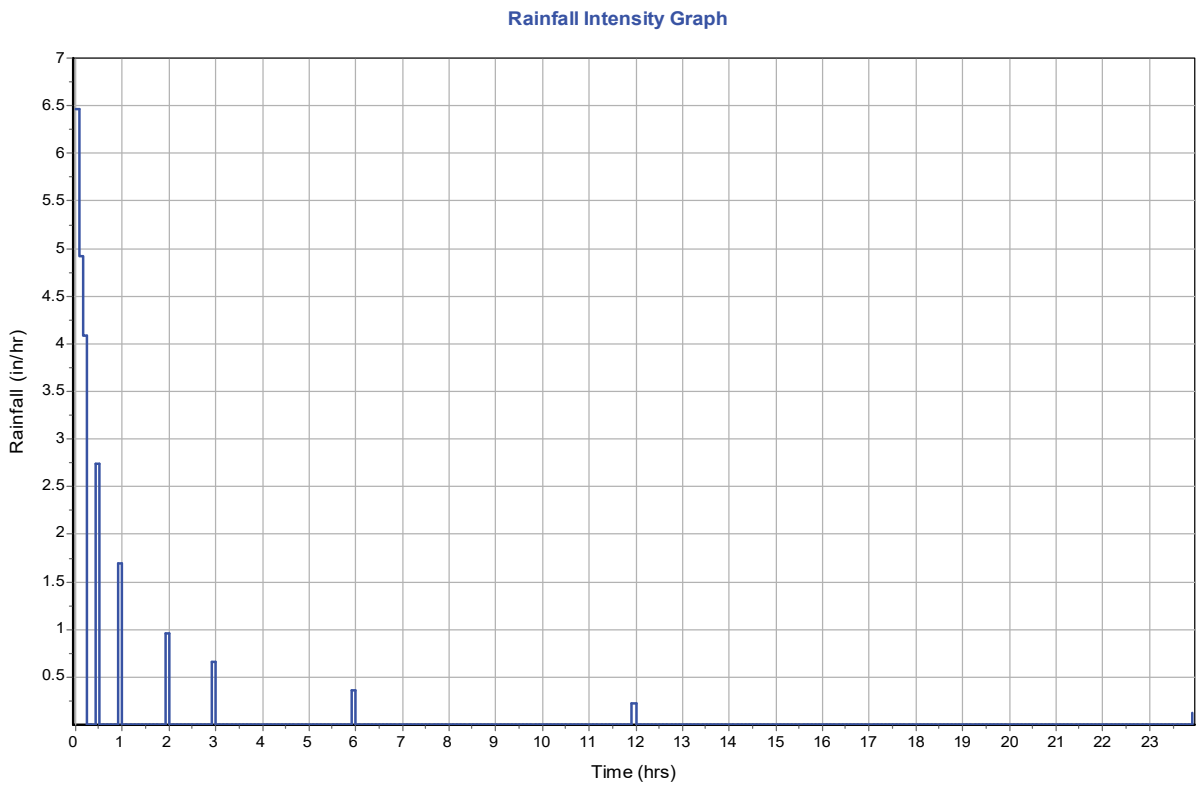
Composite Curve Number

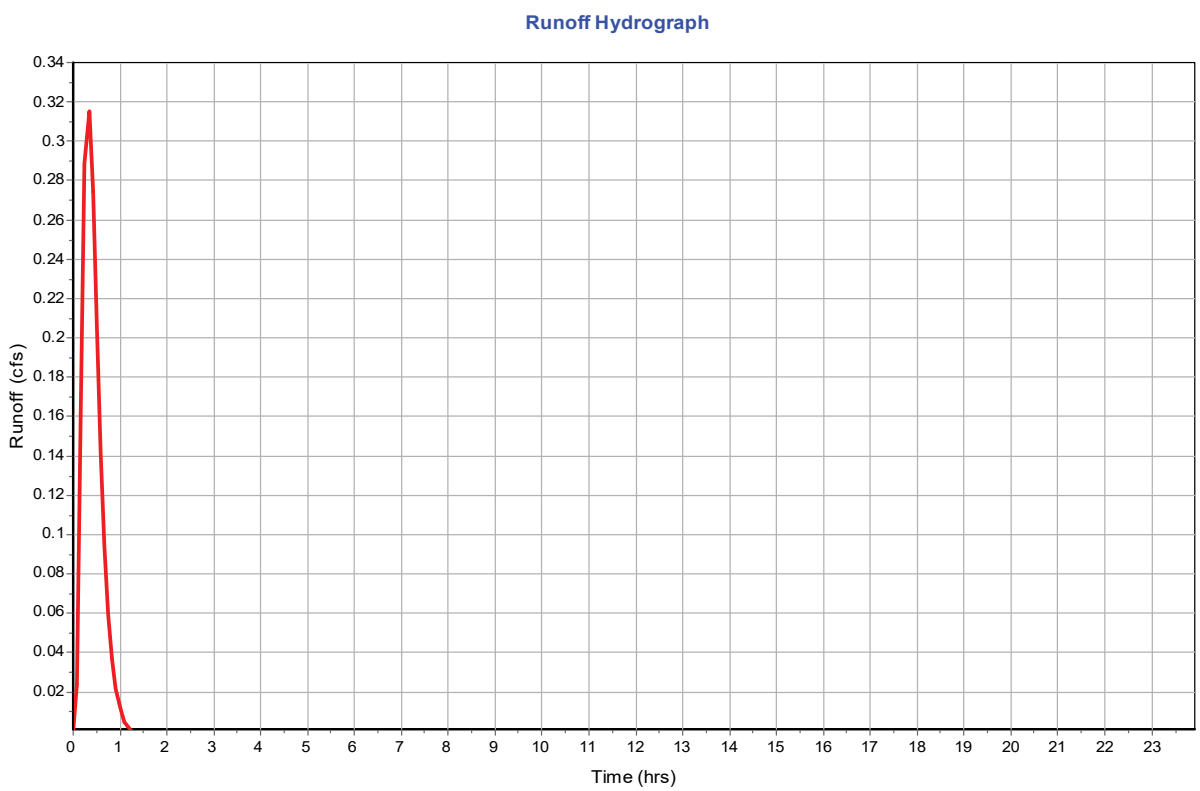
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.08	-	98
Composite Area & Weighted CN	0.08		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.32
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 017





Subbasin : 018

Input Data

Area (ac)	0.13
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

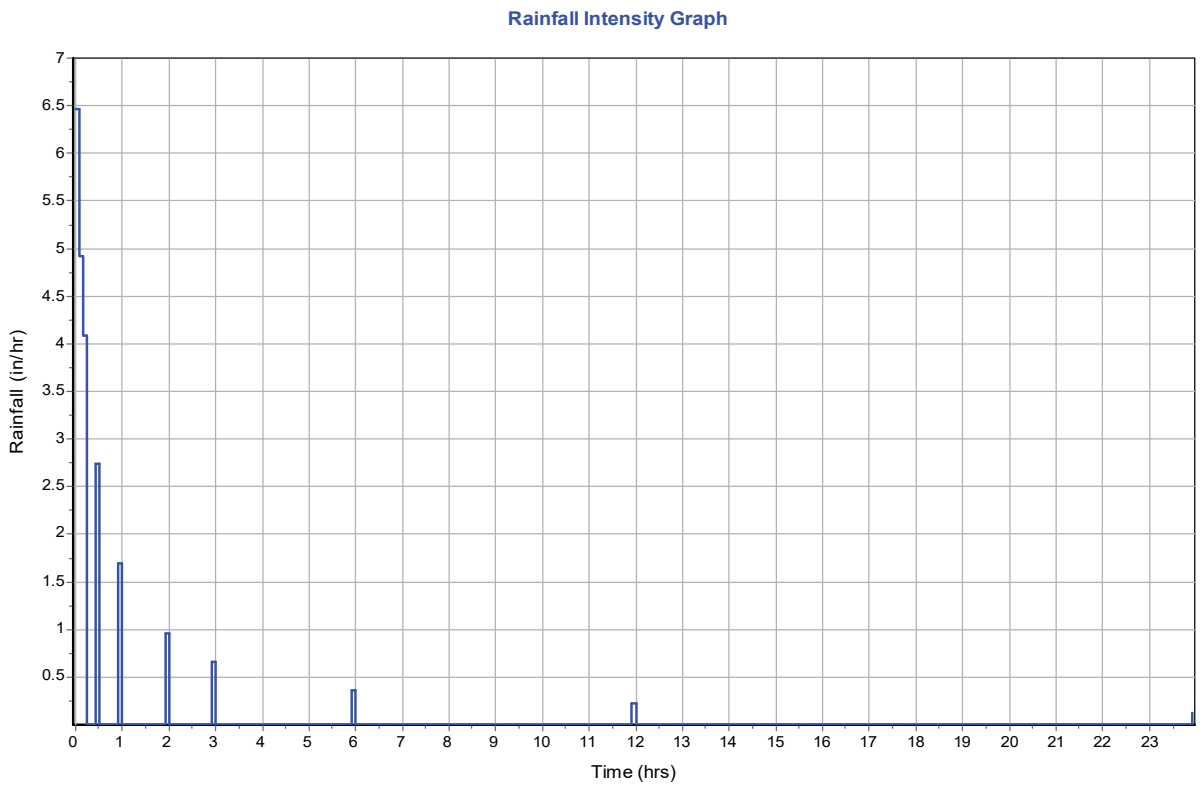
Composite Curve Number

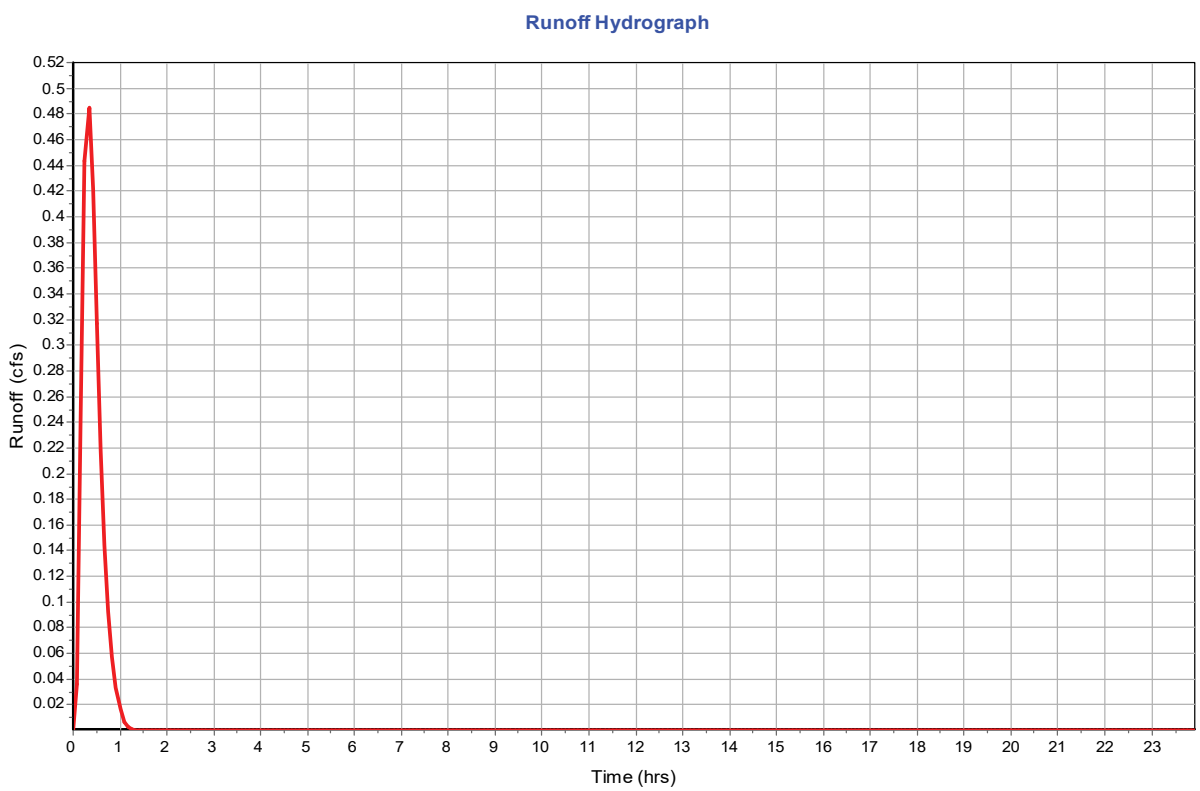
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.13	-	98
Composite Area & Weighted CN	0.13		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.49
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 018





Subbasin : 019

Input Data

Area (ac)	0.78
Peak Rate Factor	484
Weighted Curve Number	86.5
Rain Gage ID	*

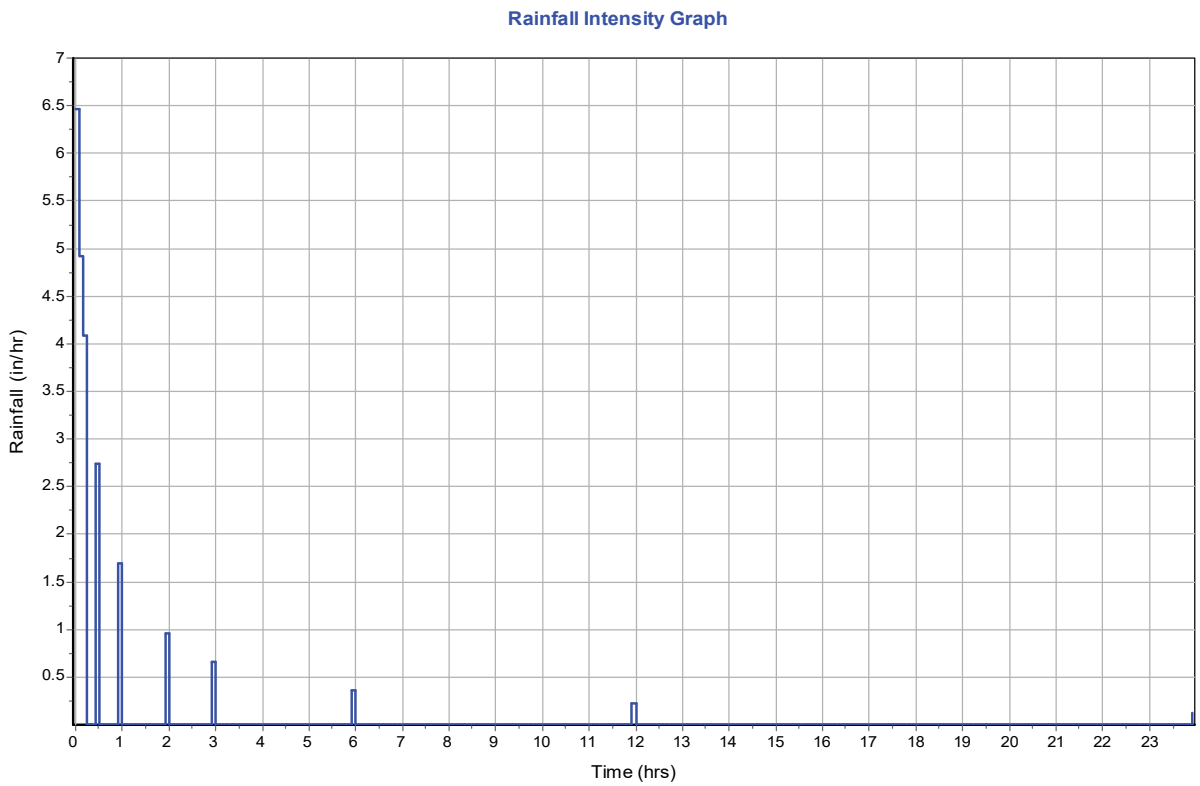
Composite Curve Number

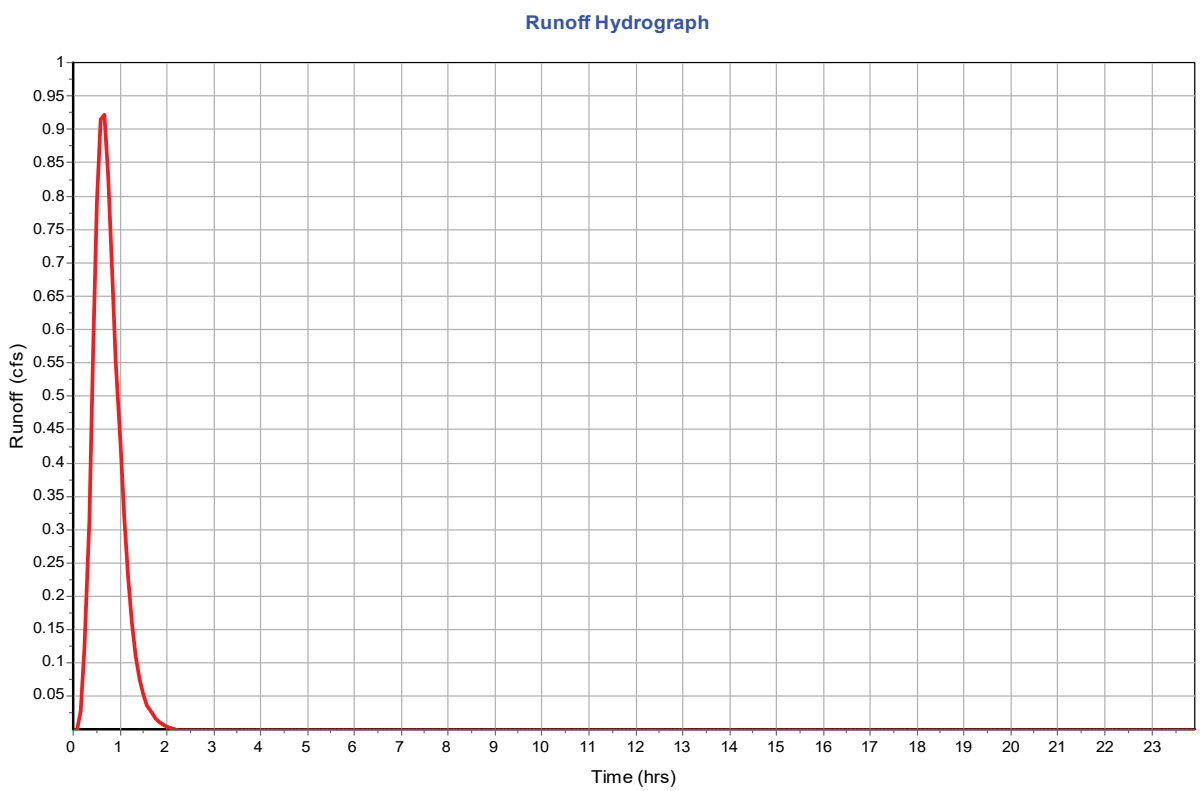
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.78	-	86.5
Composite Area & Weighted CN	0.78		86.5

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.76
Peak Runoff (cfs)	0.94
Weighted Curve Number	86.5
Time of Concentration (days hh:mm:ss)	0 00:35:00

Subbasin : 019





Subbasin : 020

Input Data

Area (ac)	0.39
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

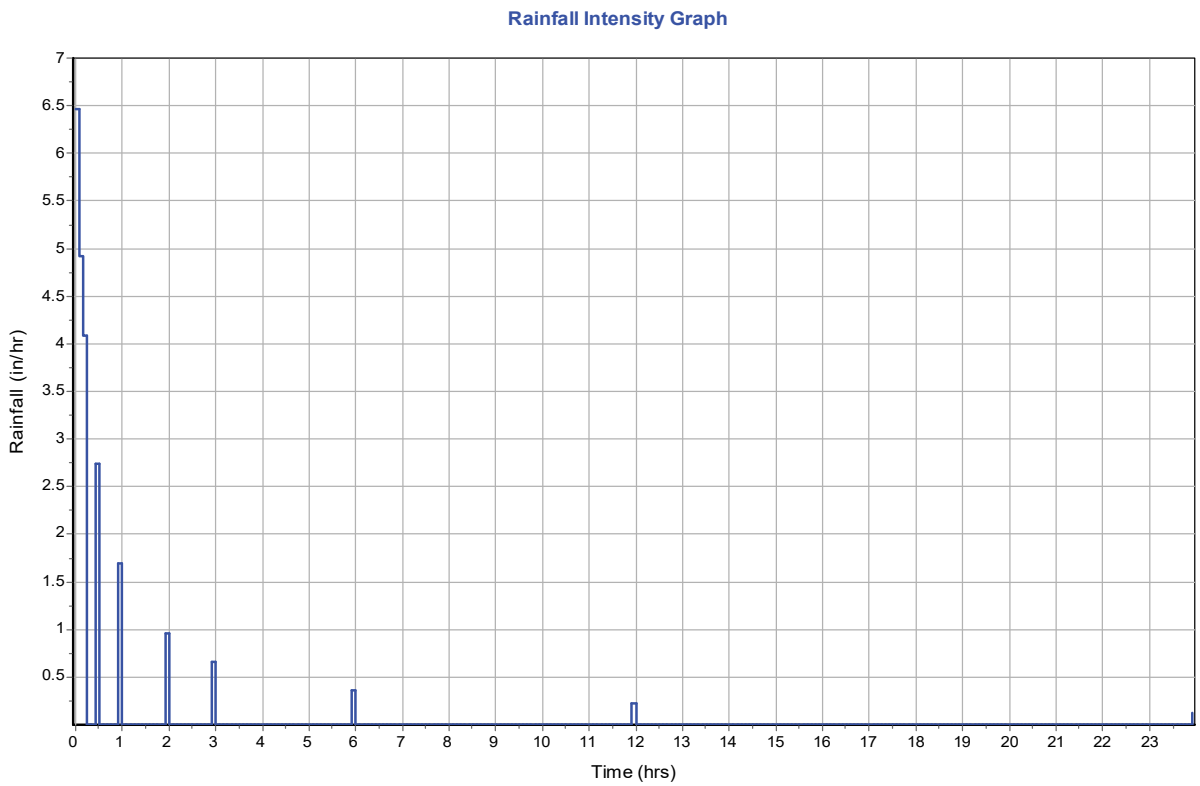
Composite Curve Number

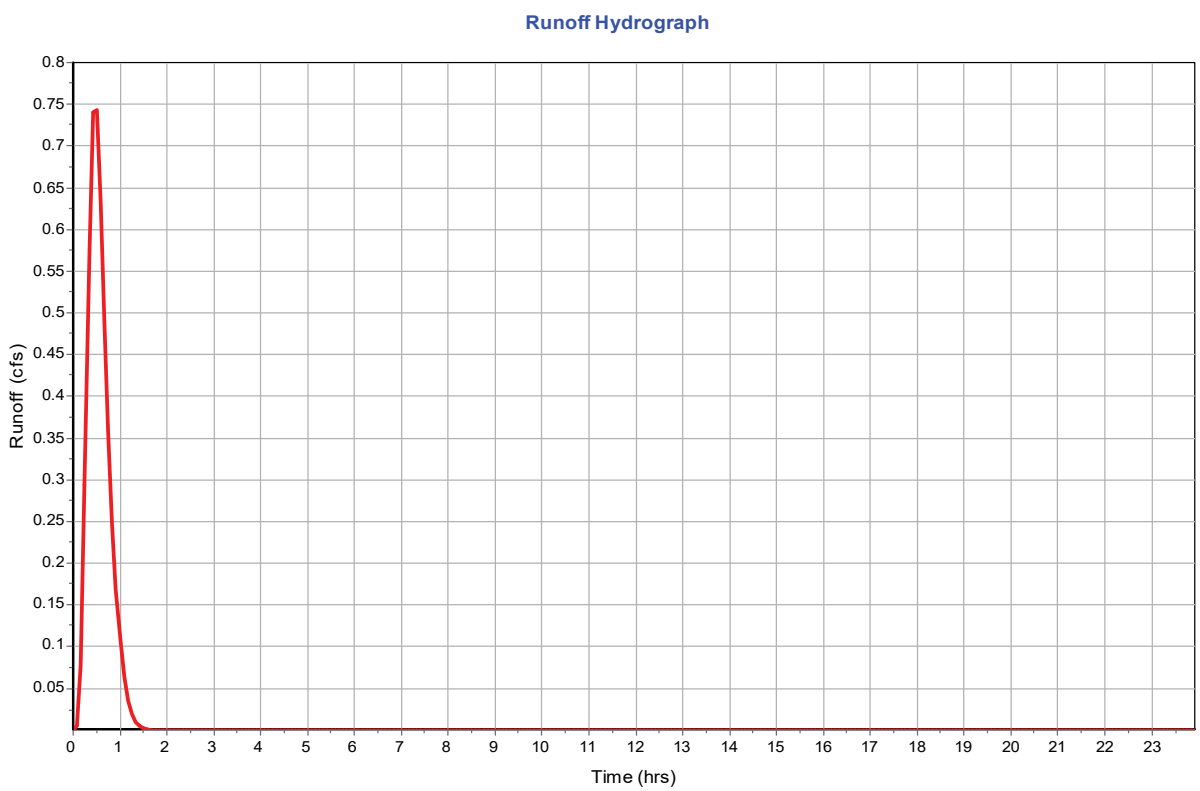
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.39	-	90
Composite Area & Weighted CN	0.39		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	0.76
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 020





Subbasin : 021

Input Data

Area (ac)	1.04
Peak Rate Factor	484
Weighted Curve Number	86.5
Rain Gage ID	*

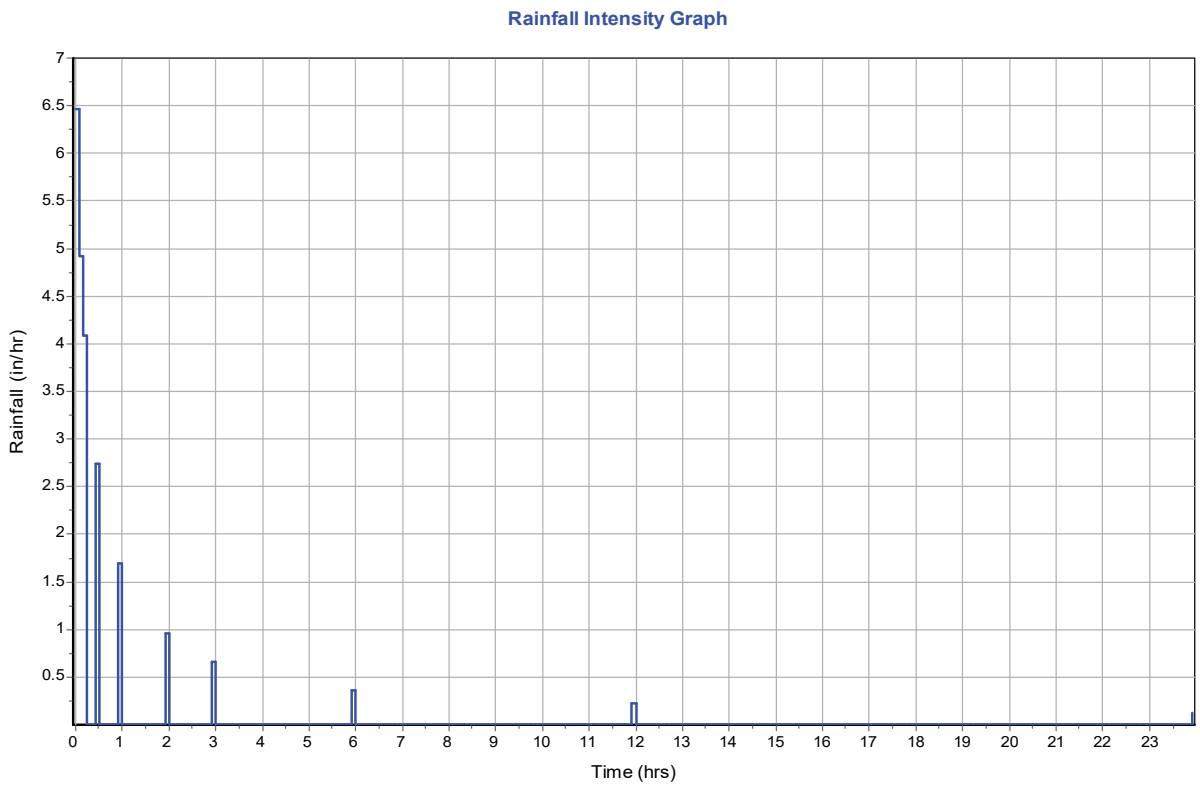
Composite Curve Number

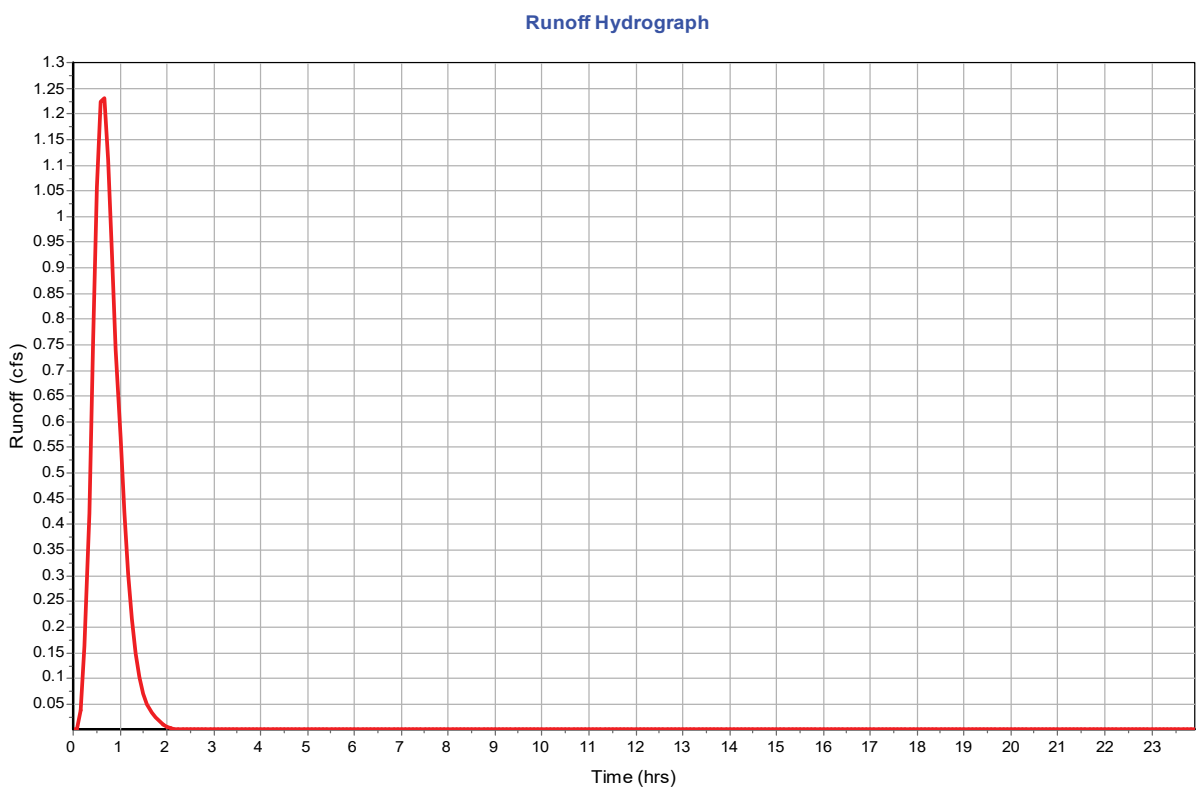
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.04	-	86.5
Composite Area & Weighted CN	1.04		86.5

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.76
Peak Runoff (cfs)	1.25
Weighted Curve Number	86.5
Time of Concentration (days hh:mm:ss)	0 00:35:00

Subbasin : 021





Subbasin : 022

Input Data

Area (ac)	0.46
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

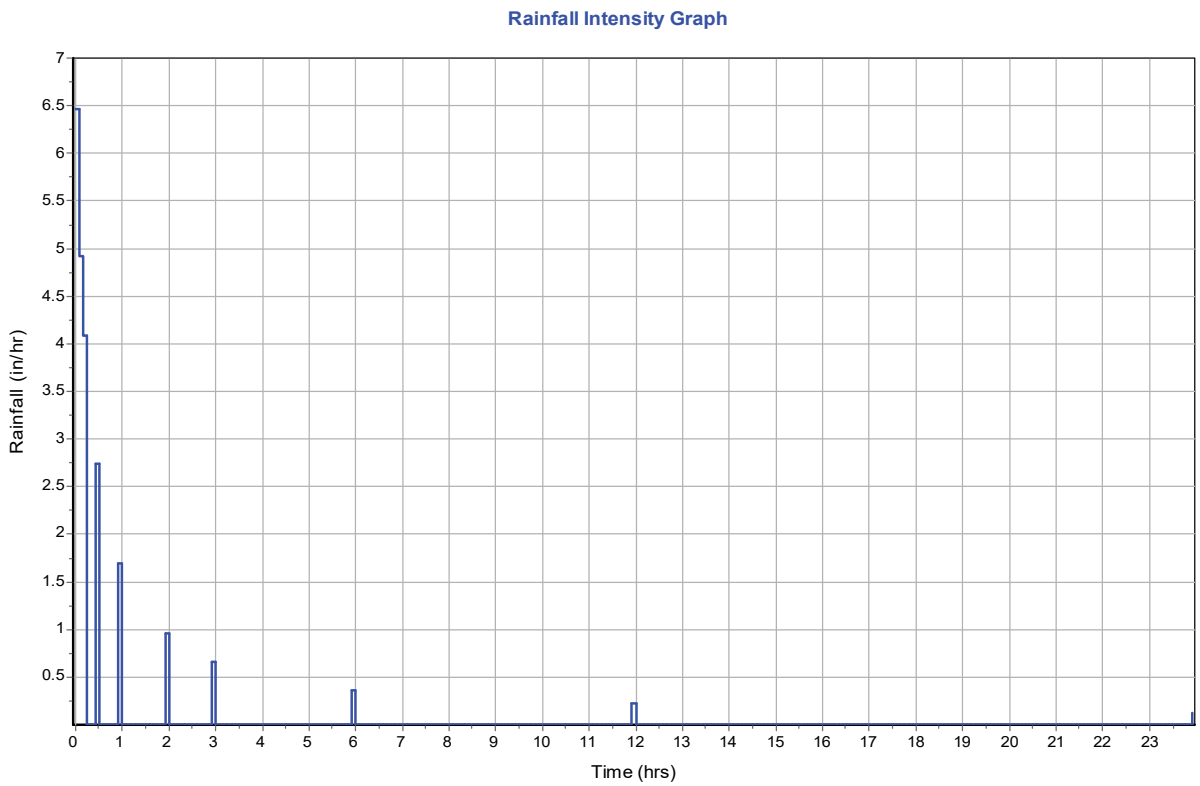
Composite Curve Number

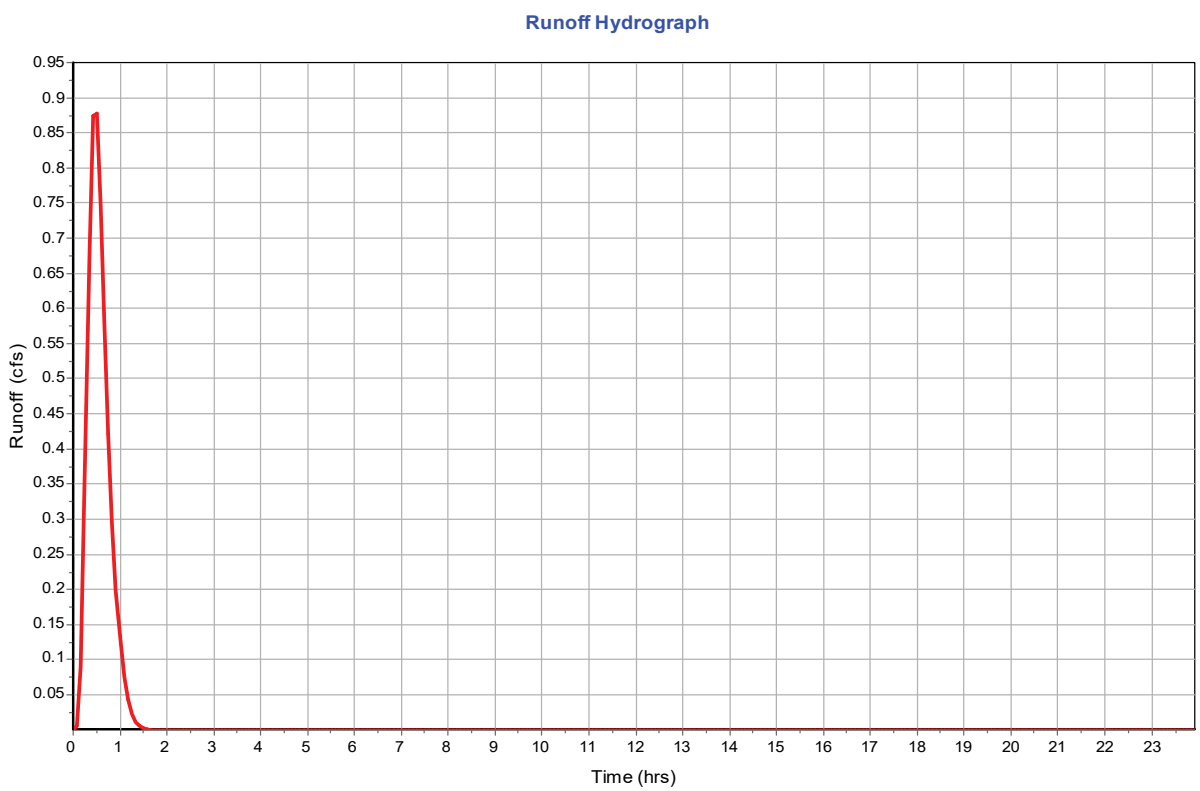
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.46	-	90
Composite Area & Weighted CN	0.46		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	0.9
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 022





Subbasin : 023

Input Data

Area (ac)	0.07
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

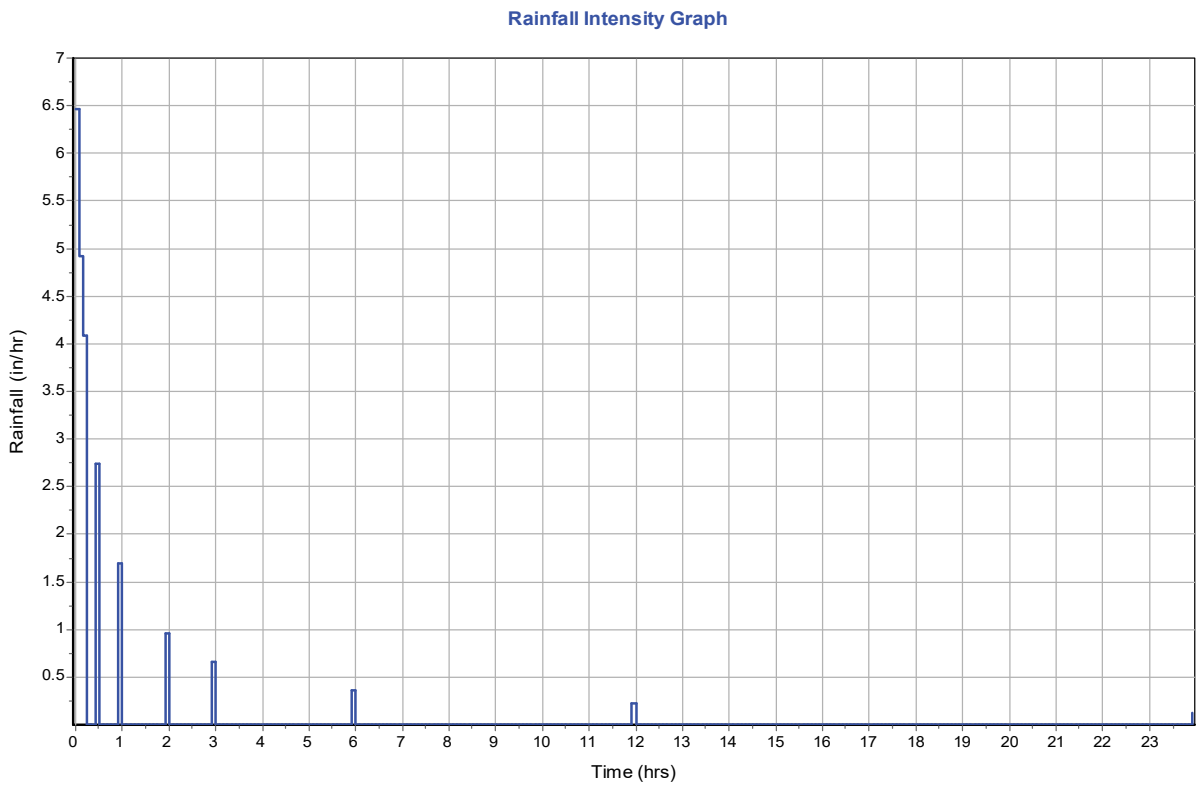
Composite Curve Number

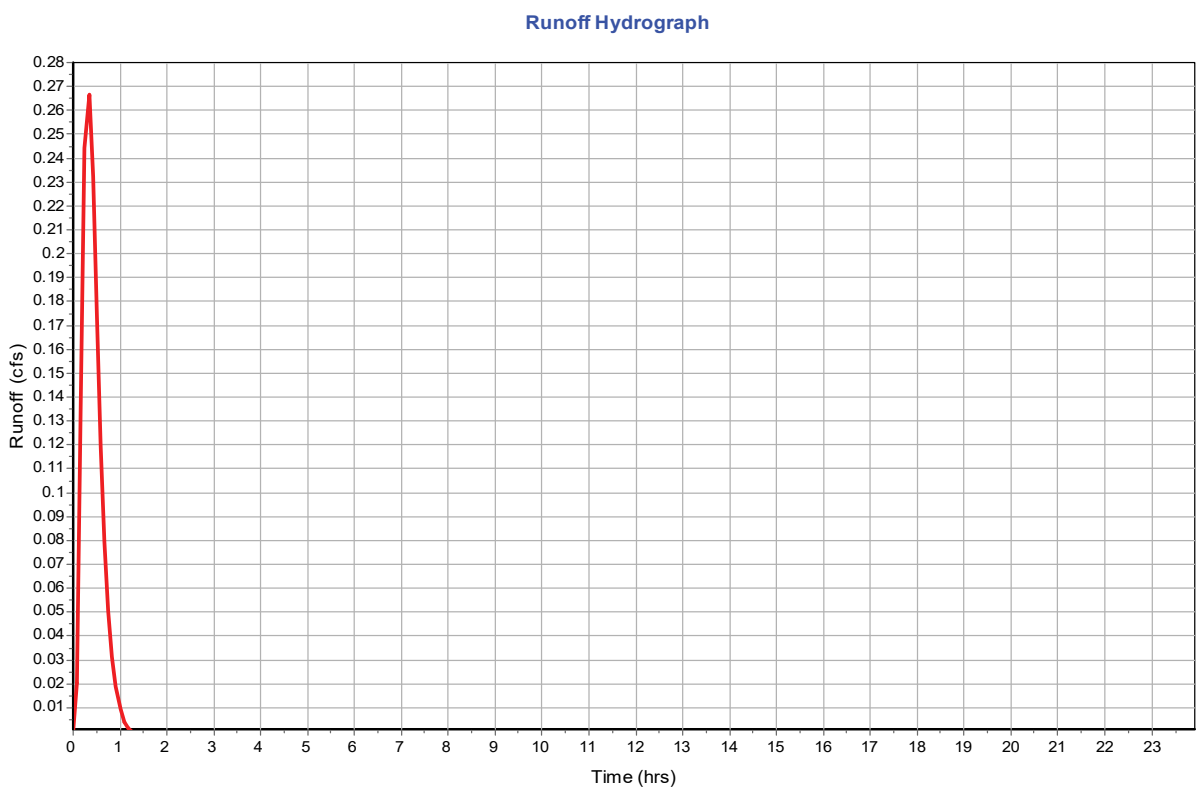
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.07	-	98
Composite Area & Weighted CN	0.07		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.27
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 023





Subbasin : 024

Input Data

Area (ac)	0.1
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

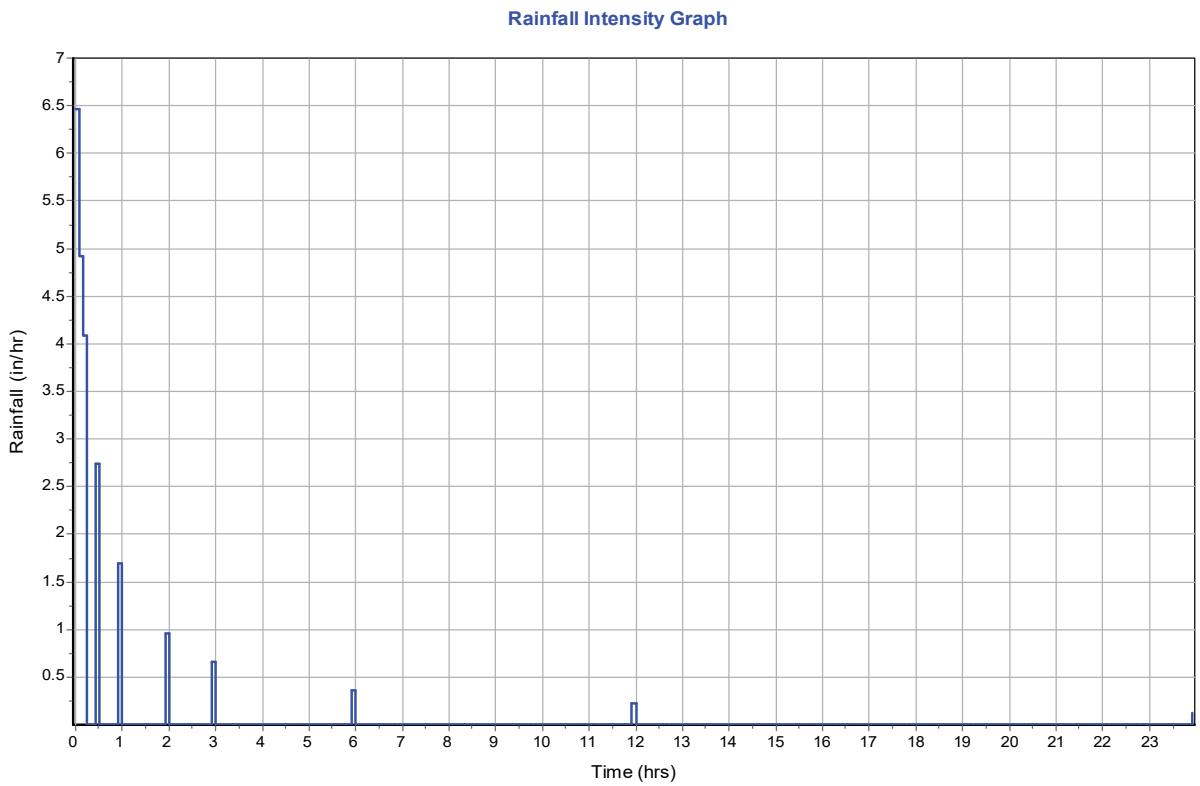
Composite Curve Number

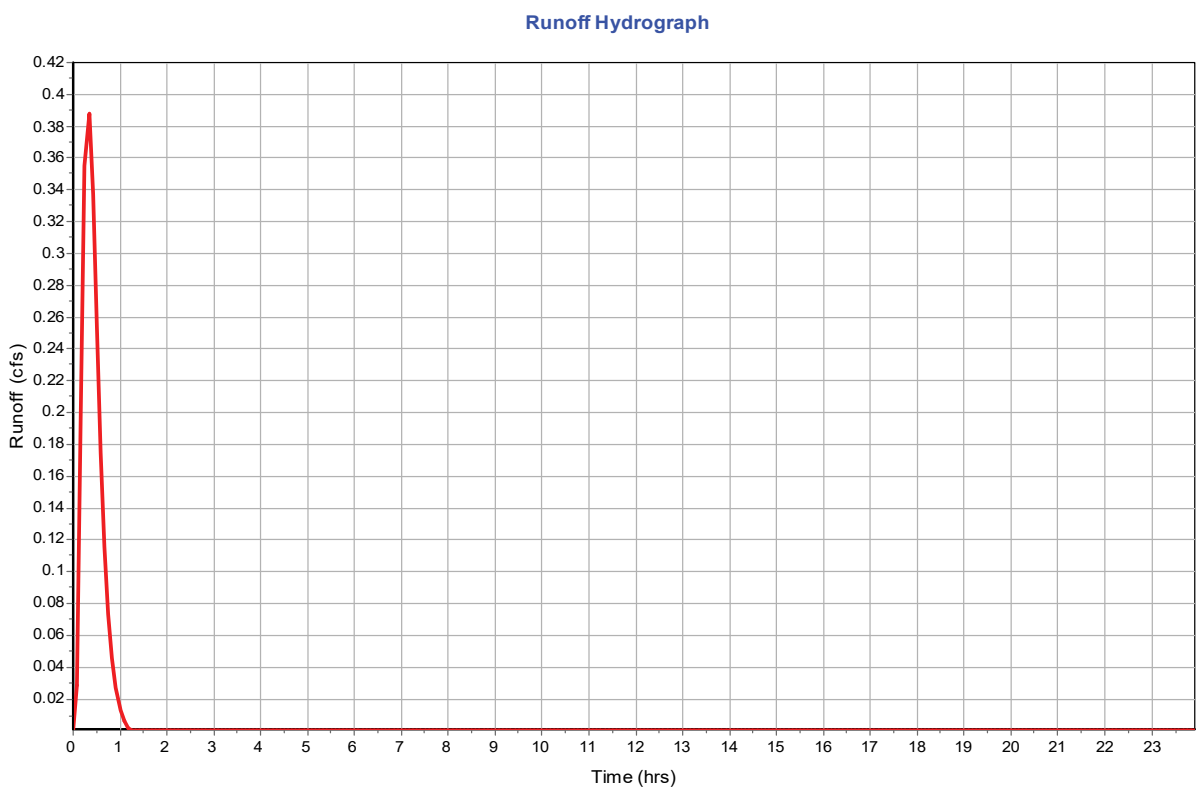
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.1	-	98
Composite Area & Weighted CN	0.1		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.39
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 024





Subbasin : 025

Input Data

Area (ac)	0.82
Peak Rate Factor	484
Weighted Curve Number	86.5
Rain Gage ID	*

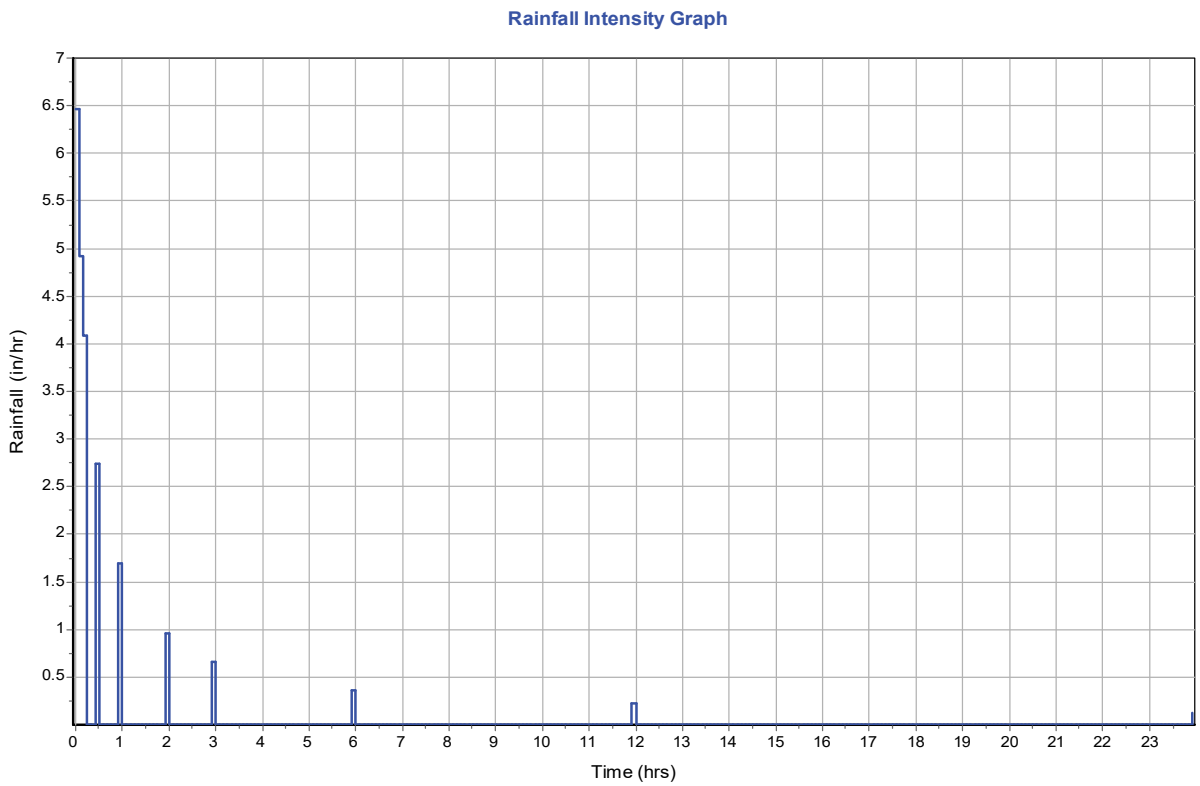
Composite Curve Number

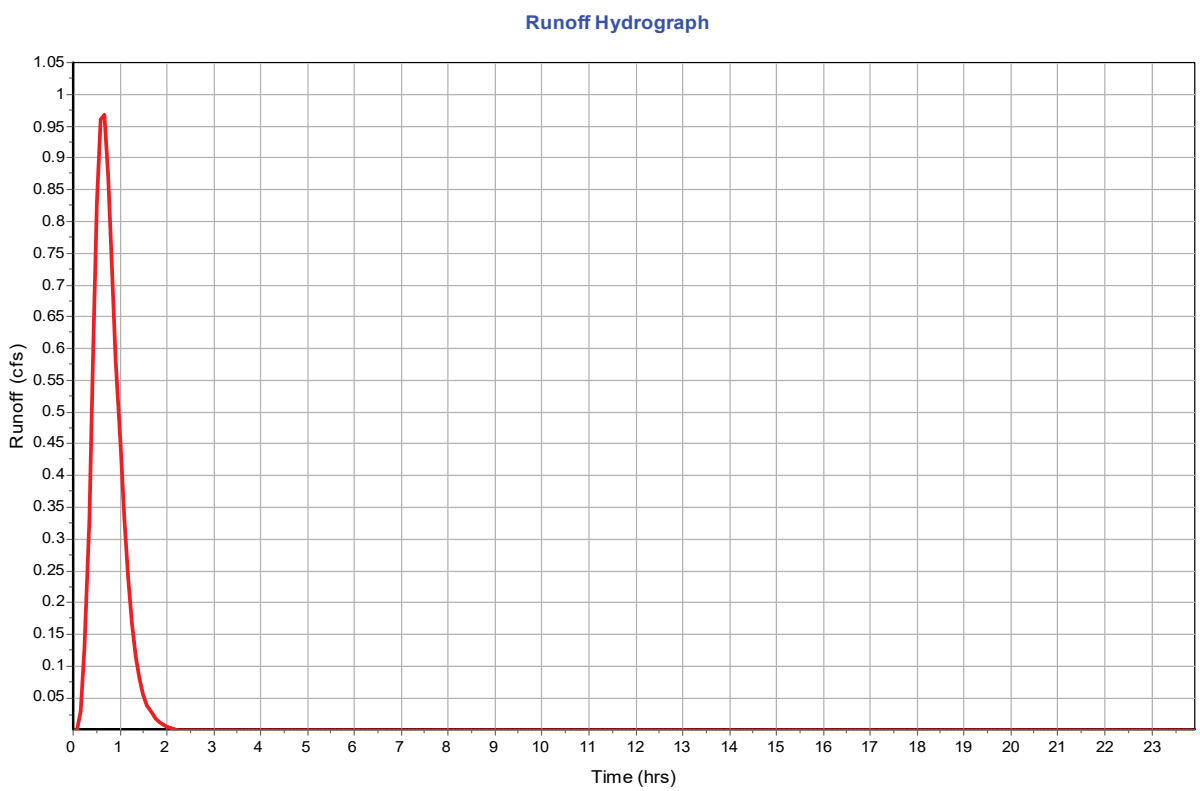
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.82	-	86.5
Composite Area & Weighted CN	0.82		86.5

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.76
Peak Runoff (cfs)	0.98
Weighted Curve Number	86.5
Time of Concentration (days hh:mm:ss)	0 00:35:00

Subbasin : 025





Subbasin : 026

Input Data

Area (ac)	0.28
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

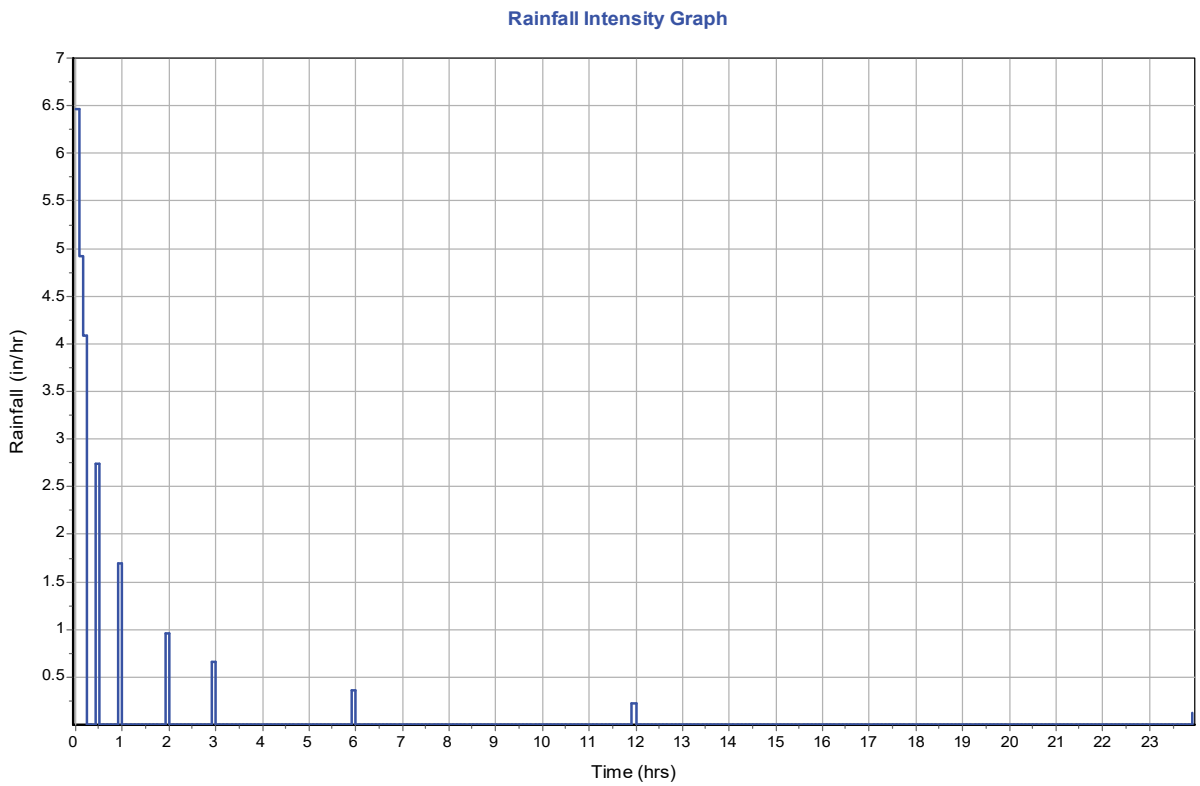
Composite Curve Number

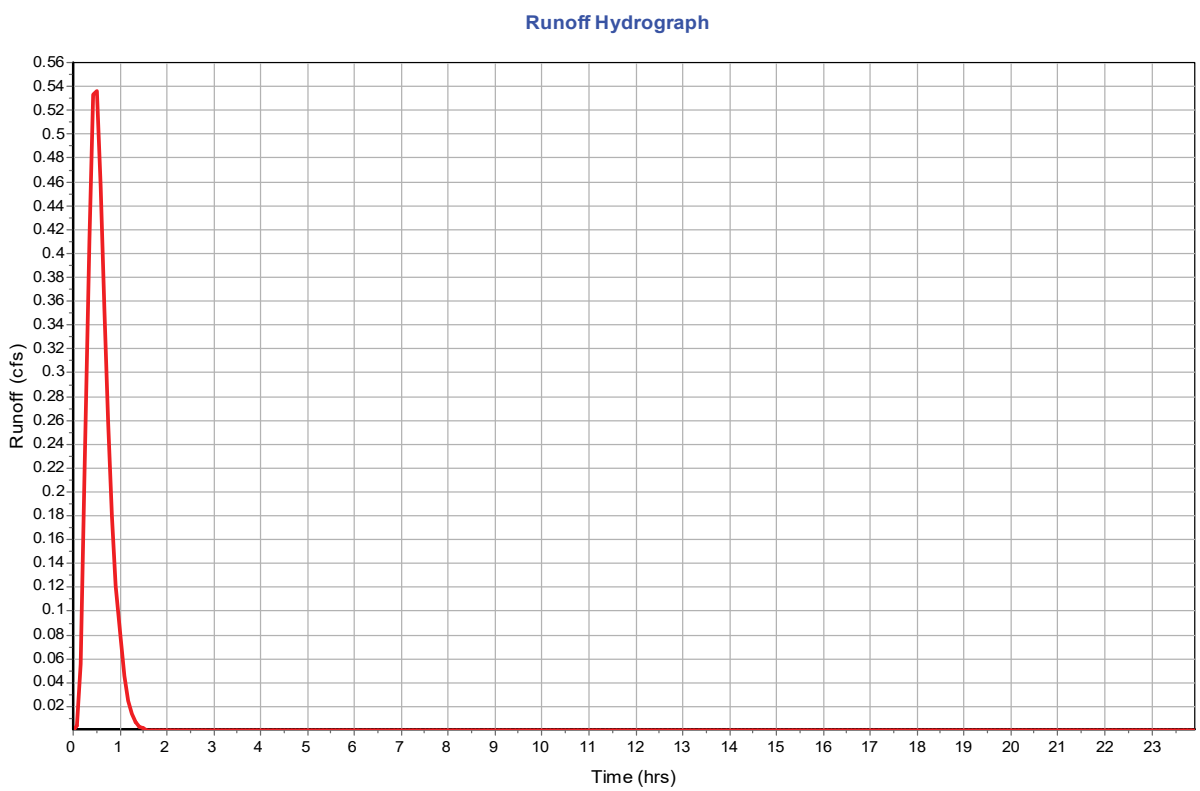
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.28	-	90
Composite Area & Weighted CN	0.28		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	0.55
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 026





Subbasin : 027

Input Data

Area (ac)	0.17
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

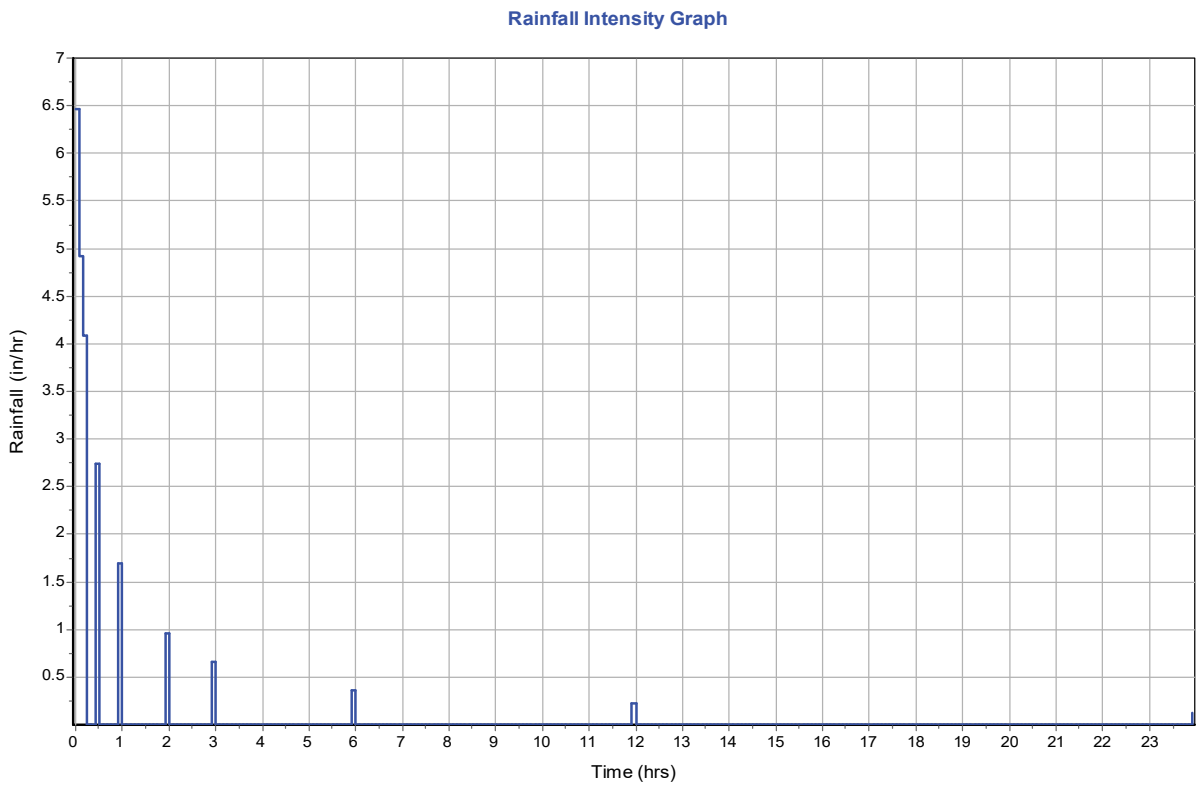
Composite Curve Number

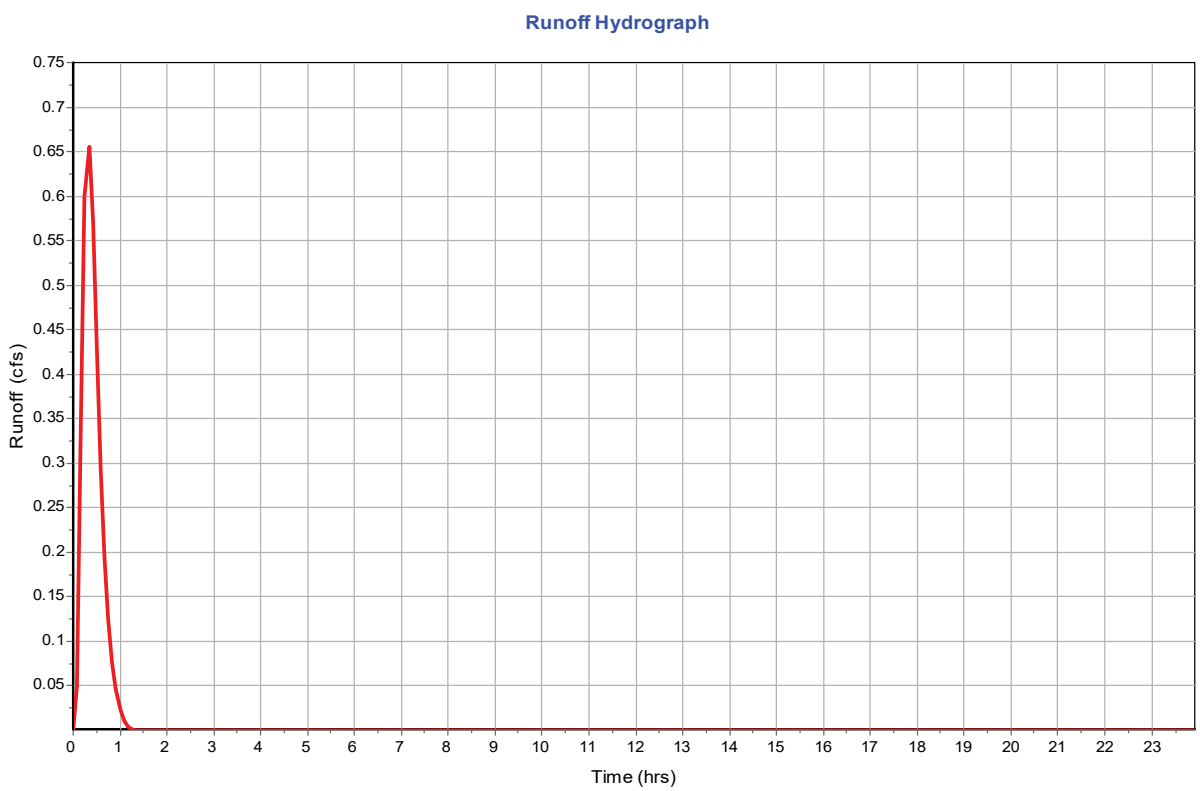
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.17	-	98
Composite Area & Weighted CN	0.17		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.66
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 027





Subbasin : 029

Input Data

Area (ac)	1.55
Peak Rate Factor	484
Weighted Curve Number	86.5
Rain Gage ID	*

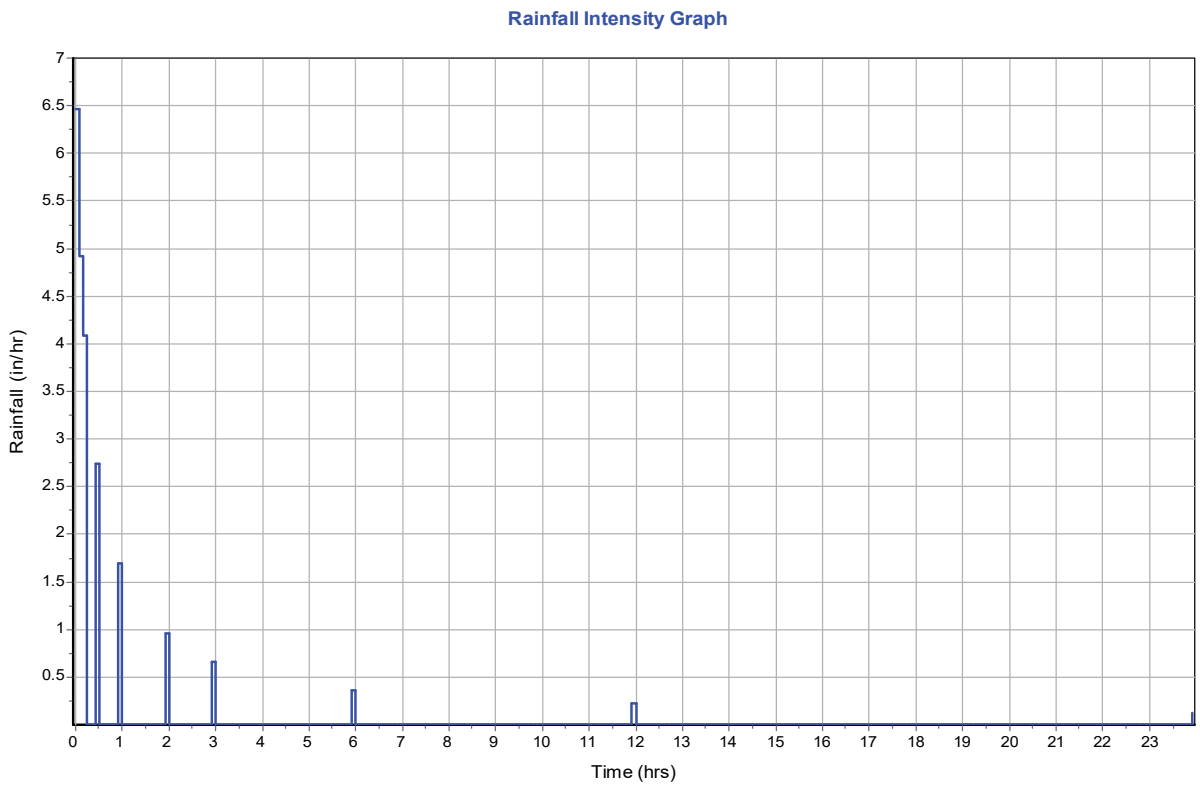
Composite Curve Number

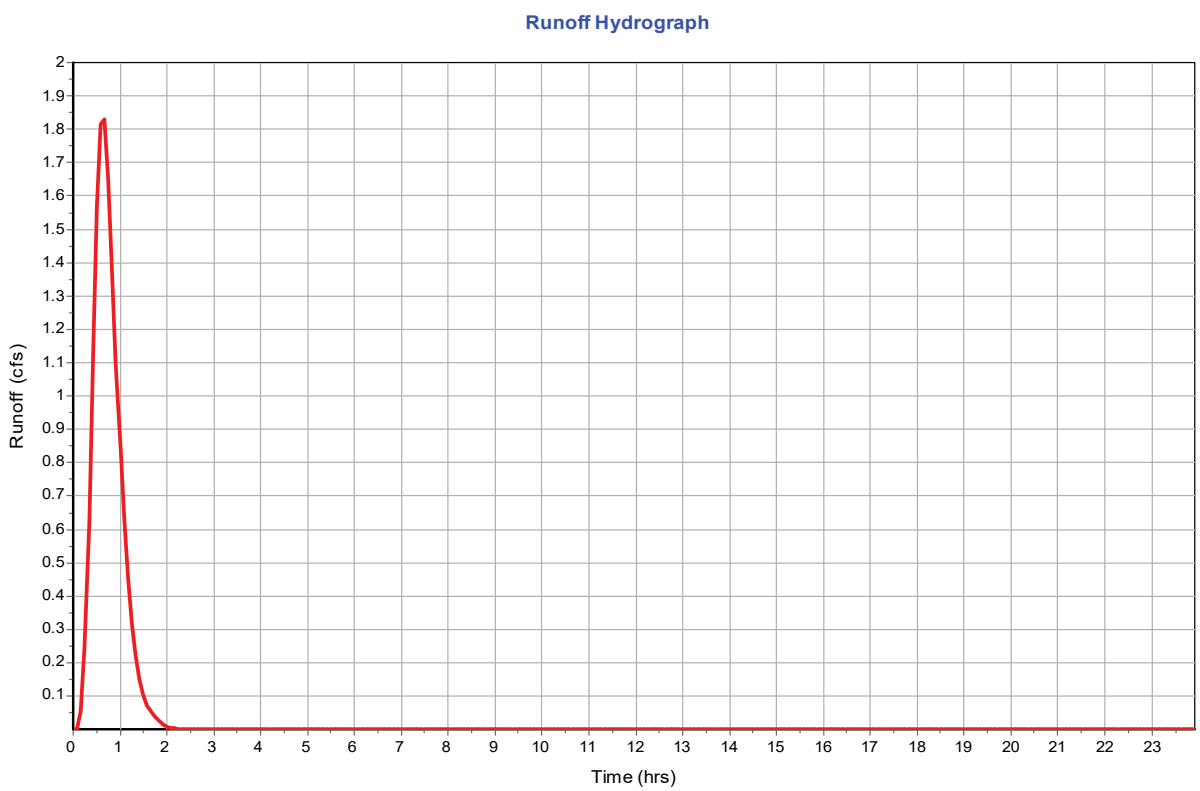
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.55	-	86.5
Composite Area & Weighted CN	1.55		86.5

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.76
Peak Runoff (cfs)	1.85
Weighted Curve Number	86.5
Time of Concentration (days hh:mm:ss)	0 00:35:00

Subbasin : 029





Subbasin : 030

Input Data

Area (ac)	0.45
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

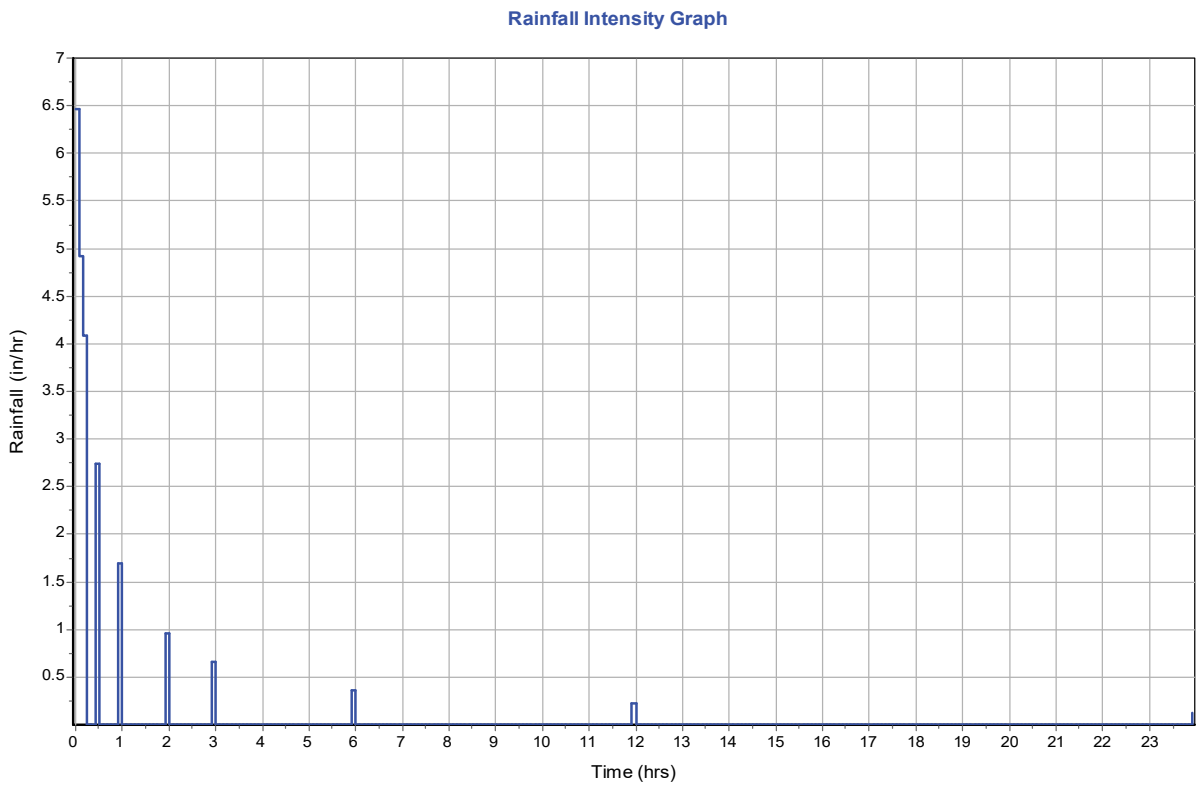
Composite Curve Number

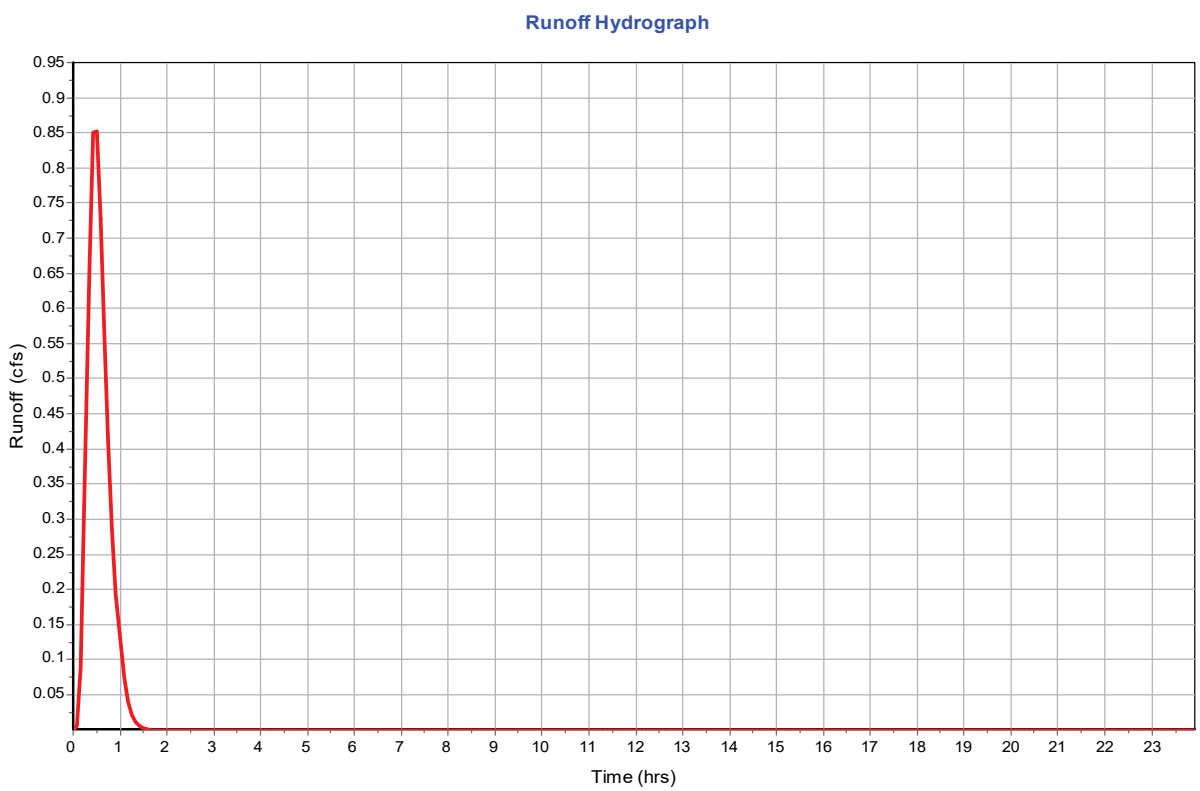
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.45	-	90
Composite Area & Weighted CN	0.45		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	0.87
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 030





Subbasin : 031

Input Data

Area (ac)	1.38
Peak Rate Factor	484
Weighted Curve Number	86.5
Rain Gage ID	*

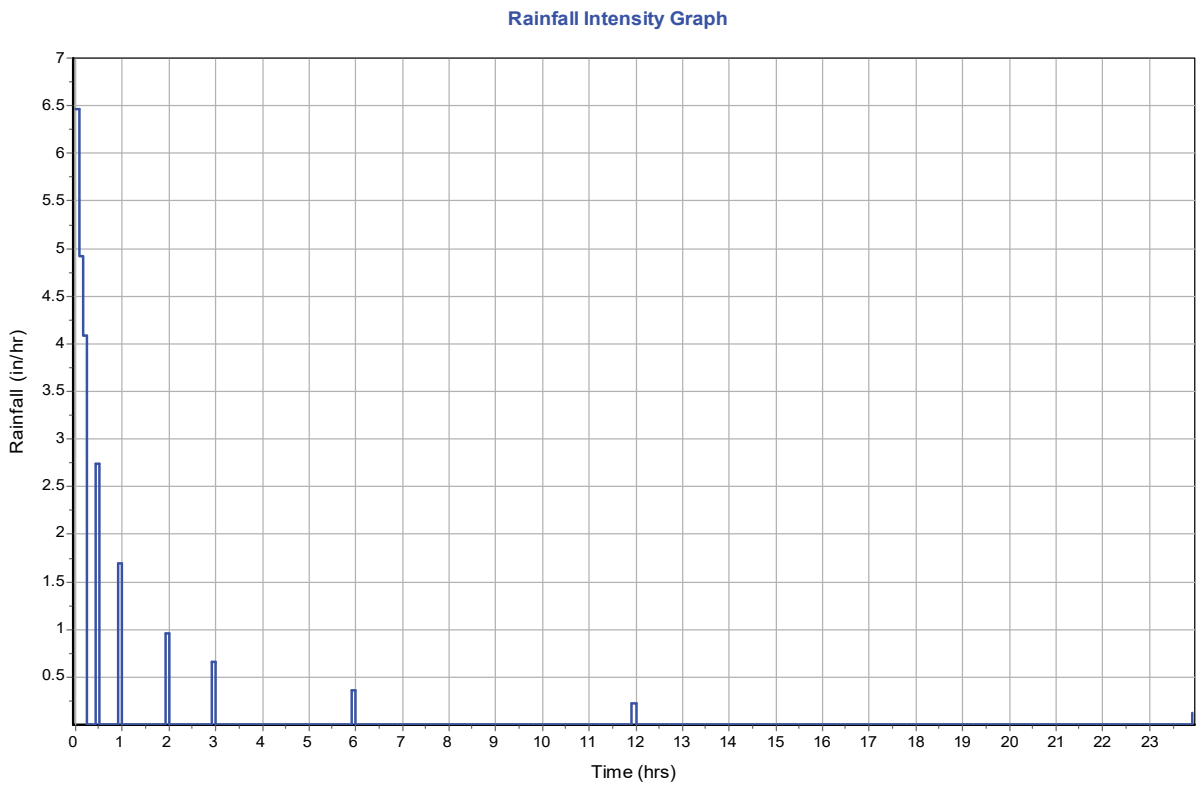
Composite Curve Number

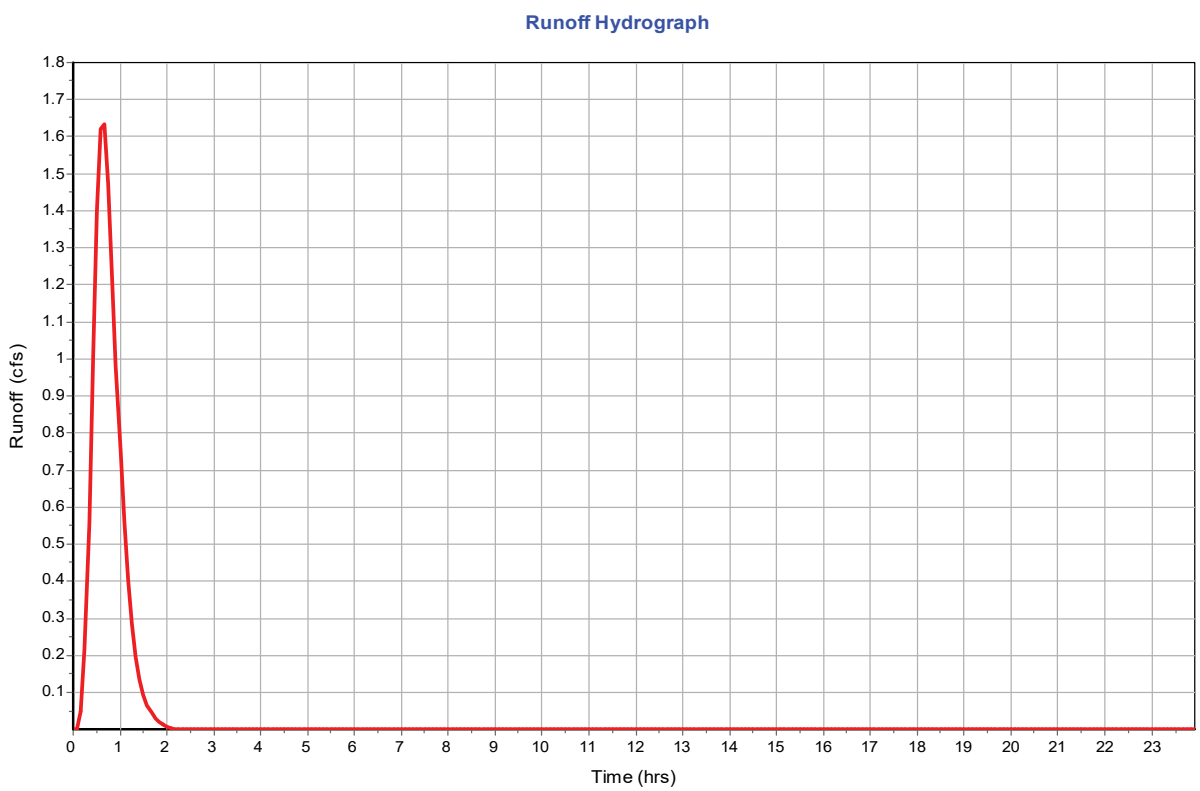
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.38	-	86.5
Composite Area & Weighted CN	1.38		86.5

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.76
Peak Runoff (cfs)	1.66
Weighted Curve Number	86.5
Time of Concentration (days hh:mm:ss)	0 00:35:00

Subbasin : 031





Subbasin : 032

Input Data

Area (ac)	0.59
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

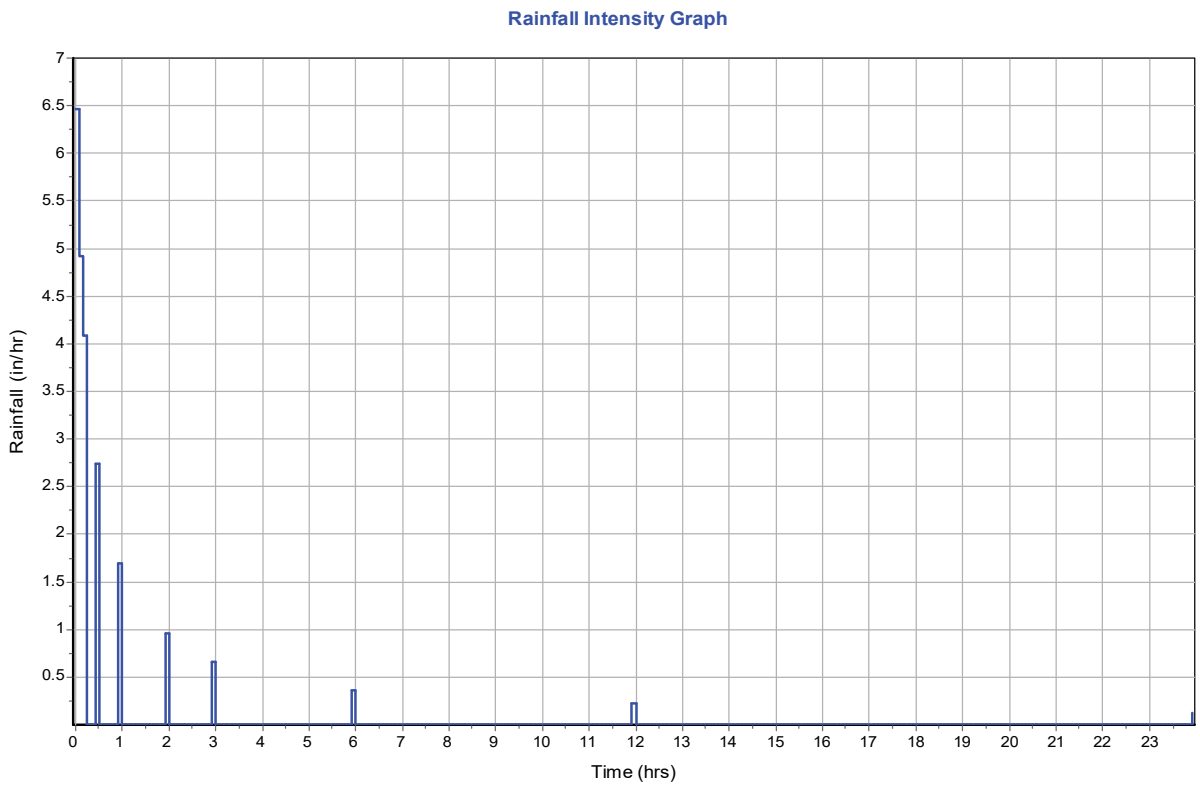
Composite Curve Number

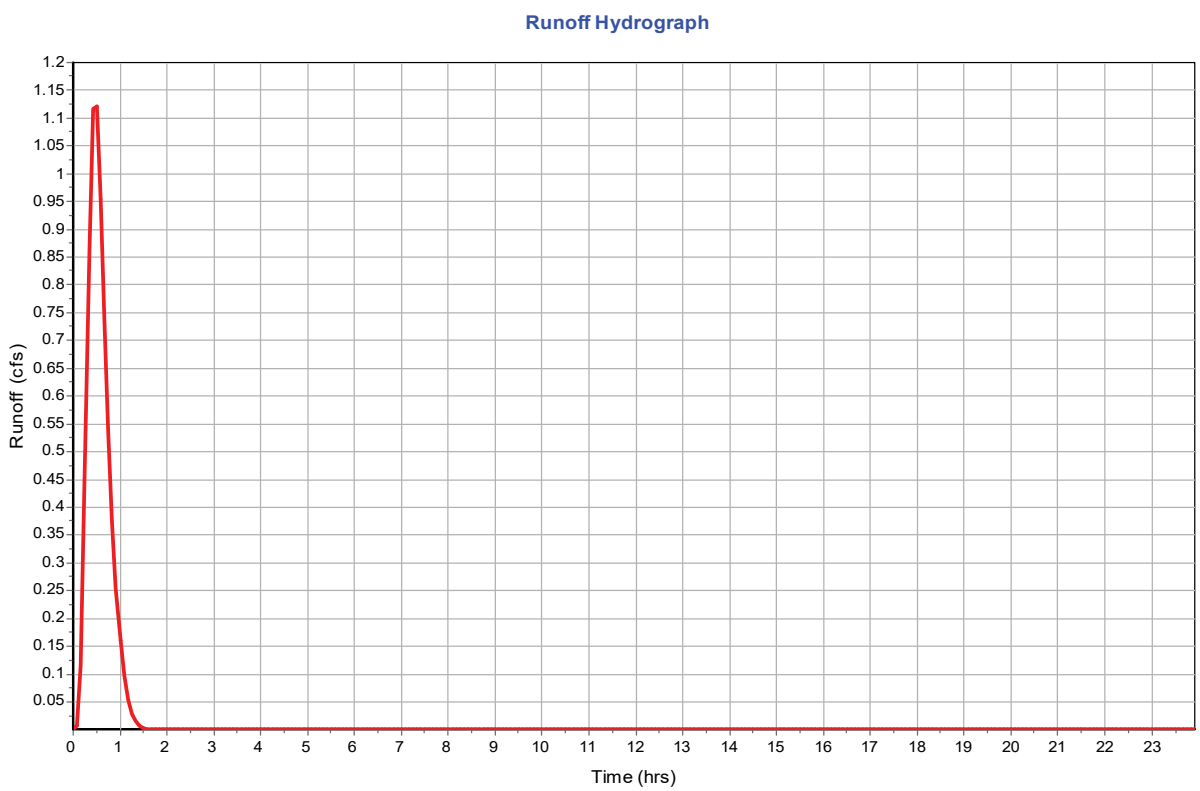
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.59	-	90
Composite Area & Weighted CN	0.59		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	1.15
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 032





Subbasin : 033

Input Data

Area (ac)	0.24
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

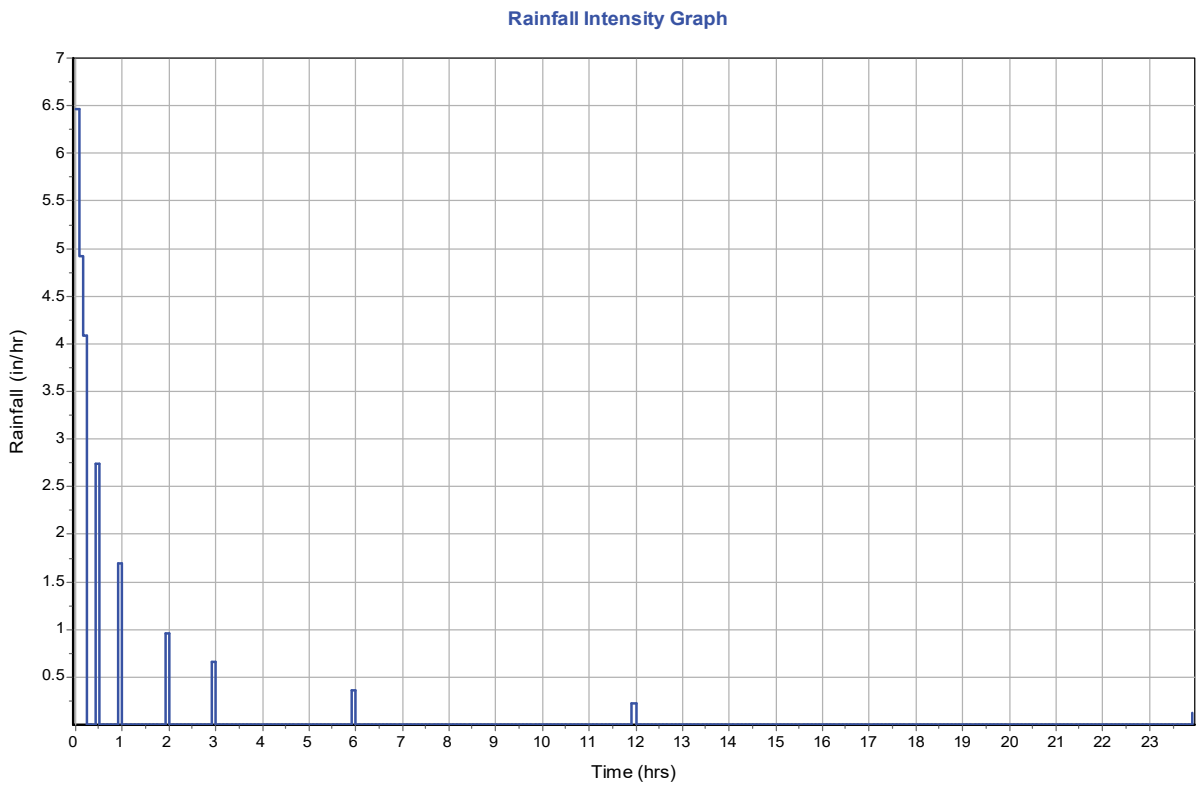
Composite Curve Number

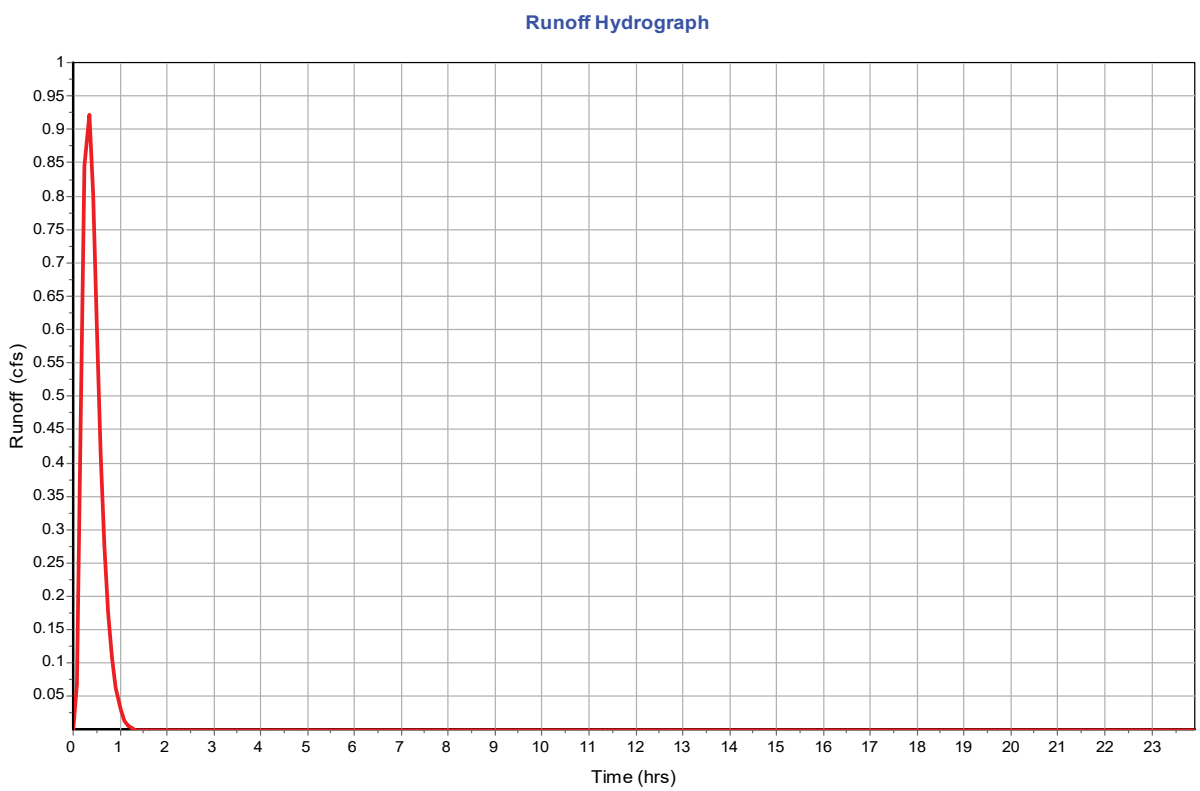
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.24	-	98
Composite Area & Weighted CN	0.24		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.93
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 033





Subbasin : 034

Input Data

Area (ac)	1.22
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

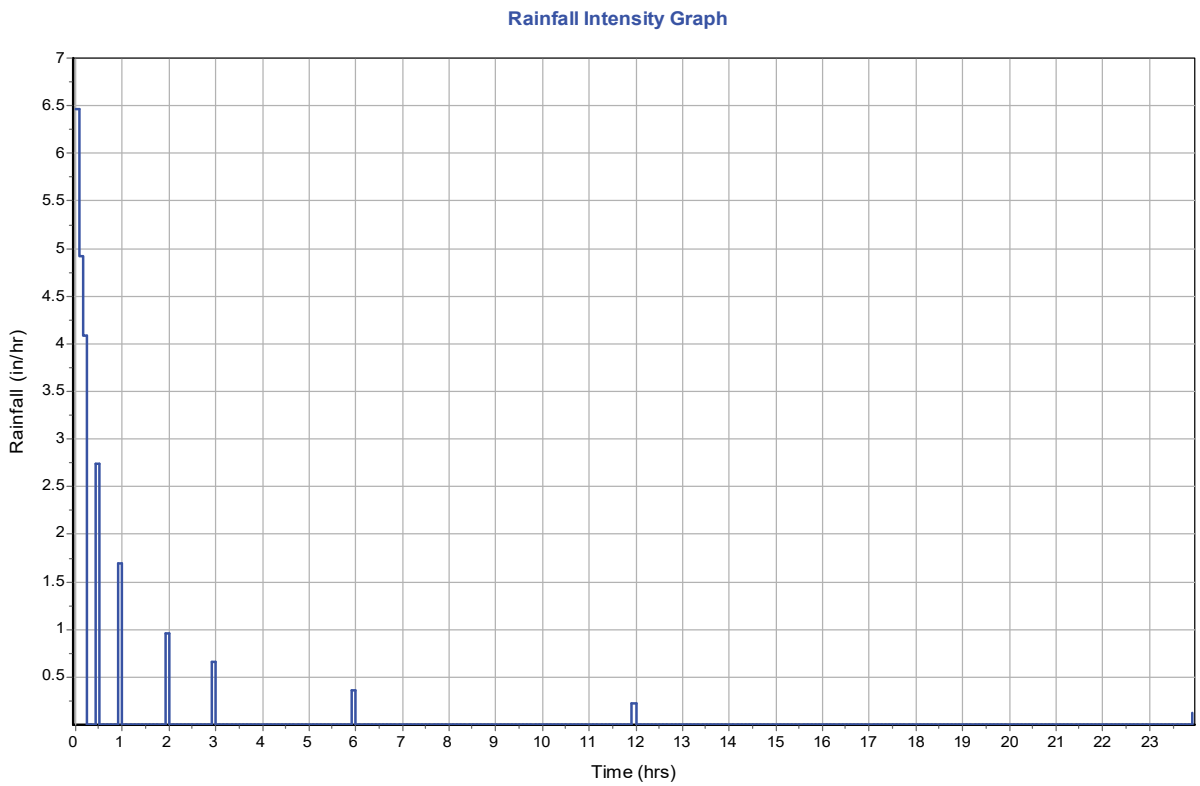
Composite Curve Number

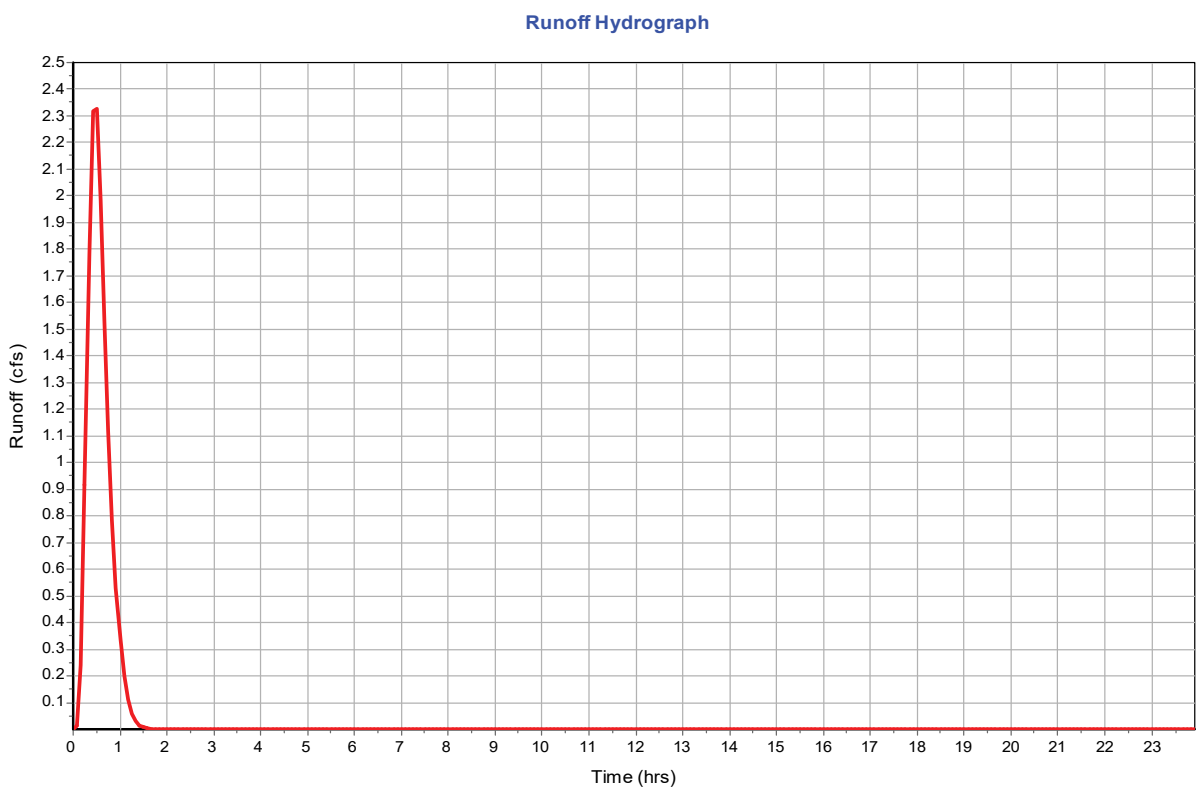
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.22	-	90
Composite Area & Weighted CN	1.22		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	2.39
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 034





Subbasin : 035

Input Data

Area (ac)	0.16
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

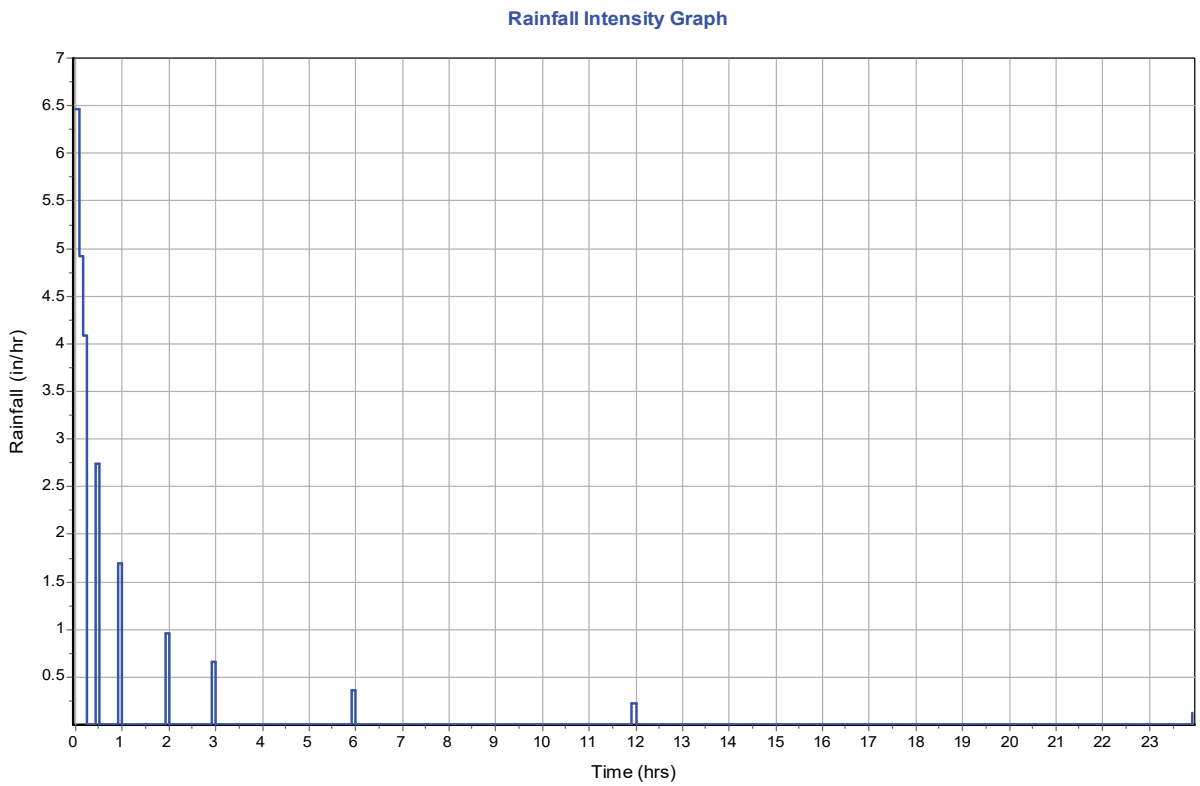
Composite Curve Number

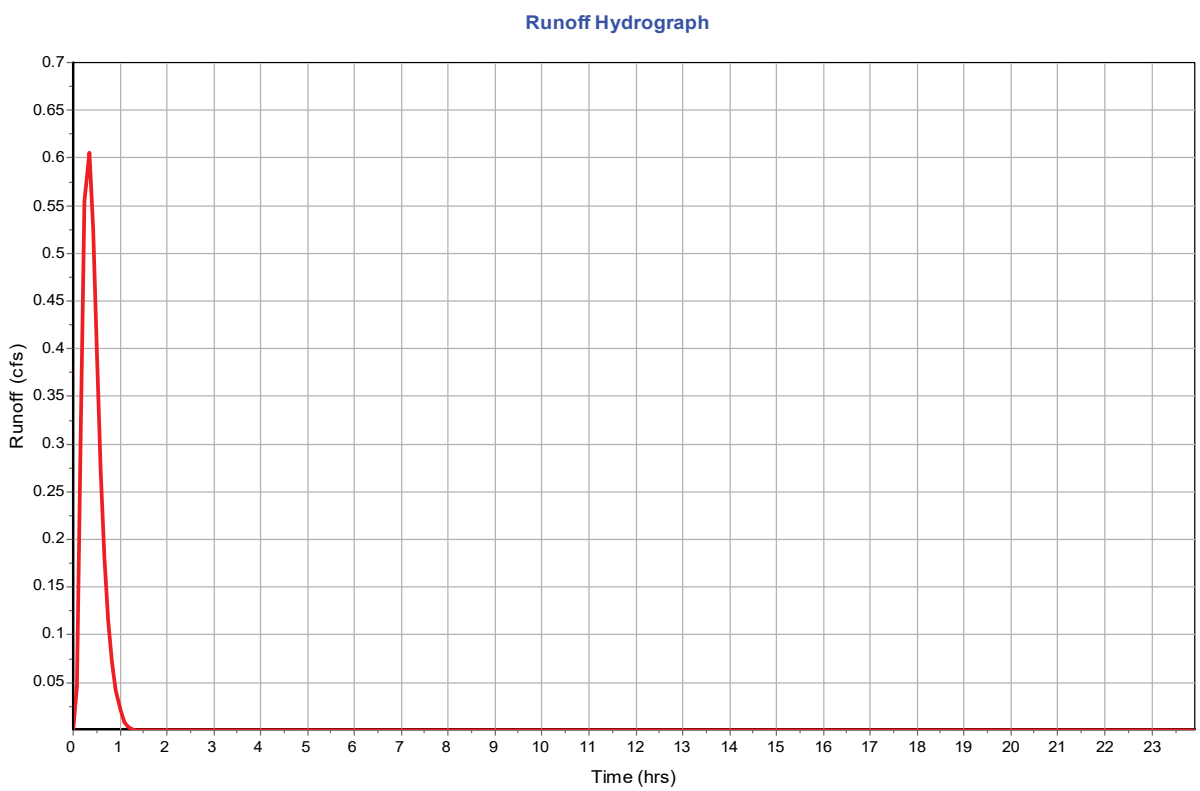
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.16	-	98
Composite Area & Weighted CN	0.16		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.61
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 035





Subbasin : 036

Input Data

Area (ac)	0.4
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

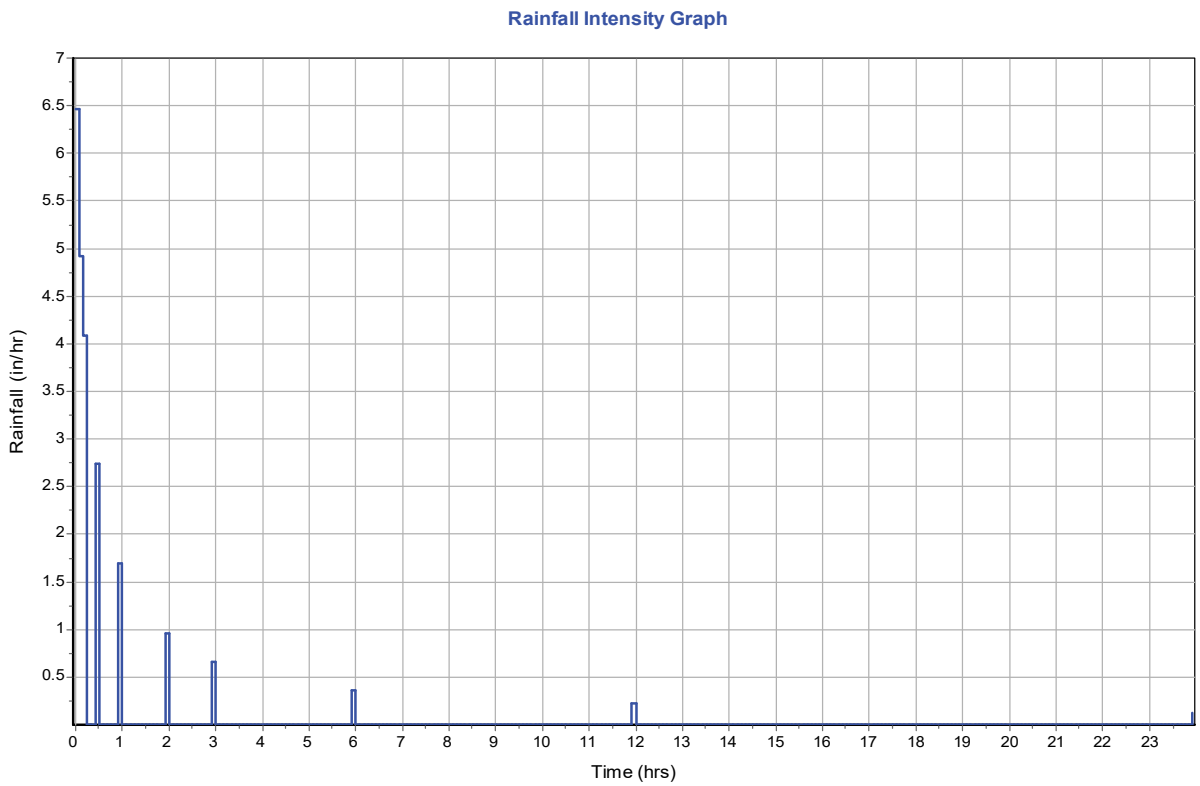
Composite Curve Number

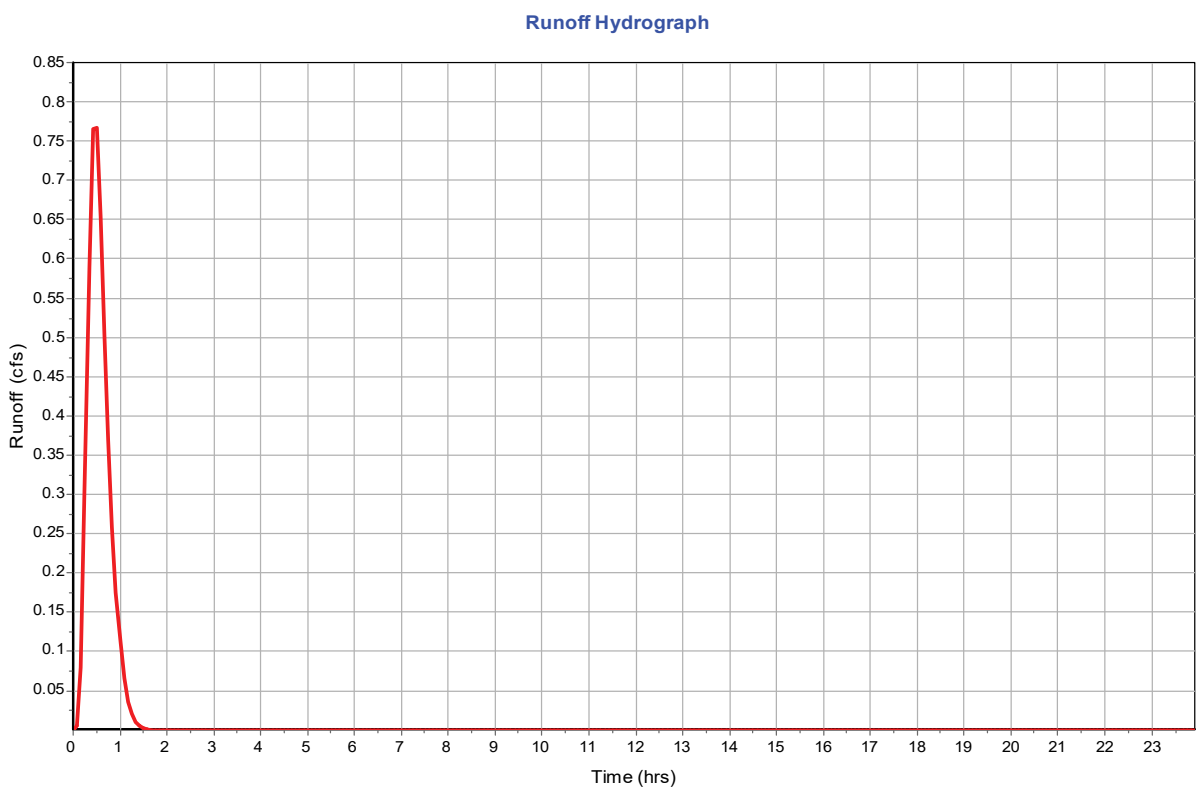
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.4	-	90
Composite Area & Weighted CN	0.4		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	0.79
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 036





Subbasin : 037

Input Data

Area (ac)	0.1
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

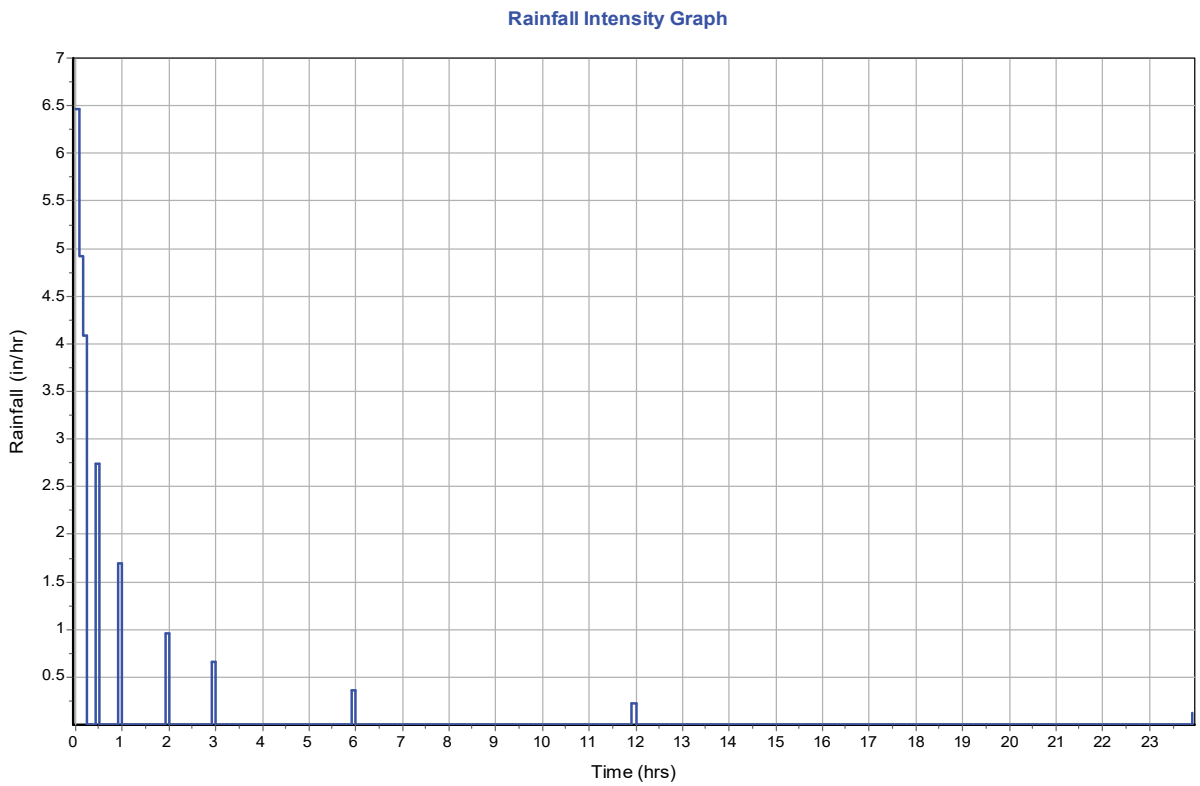
Composite Curve Number

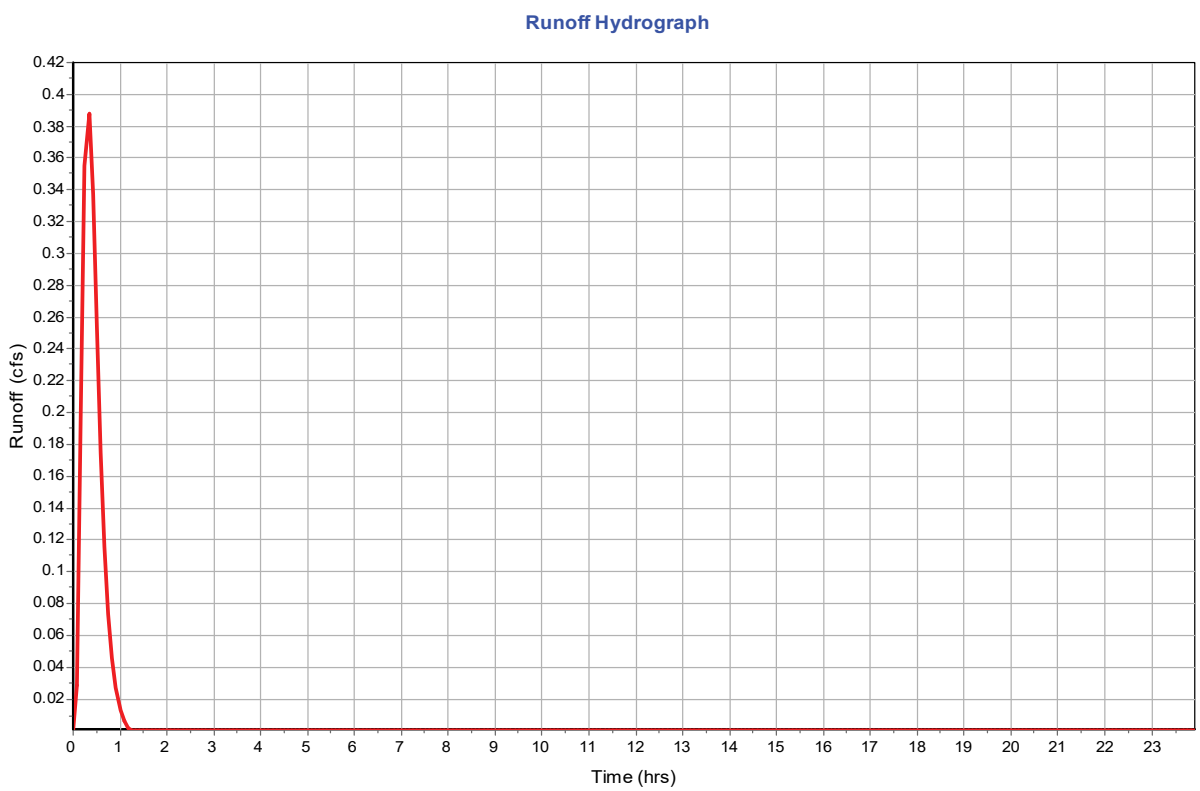
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.1	-	98
Composite Area & Weighted CN	0.1		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.39
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 037





Subbasin : 038

Input Data

Area (ac)	0.1
Peak Rate Factor	484
Weighted Curve Number	98
Rain Gage ID	*

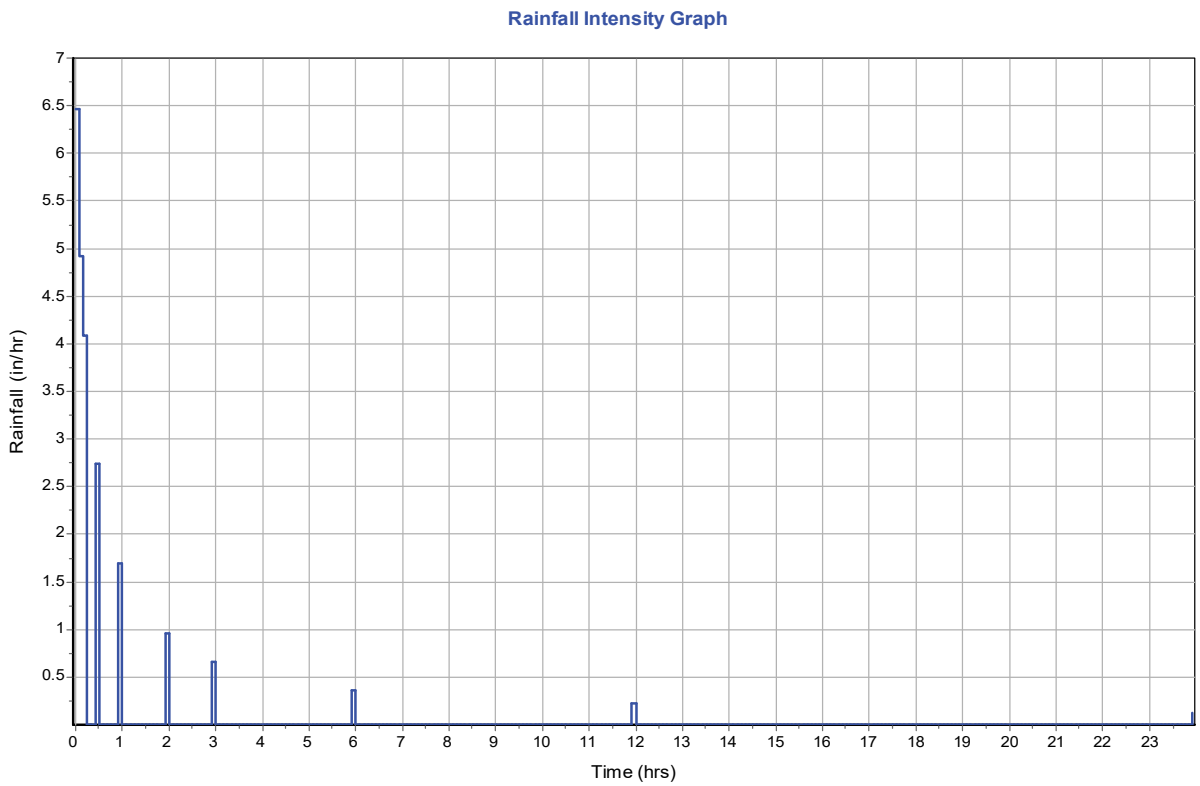
Composite Curve Number

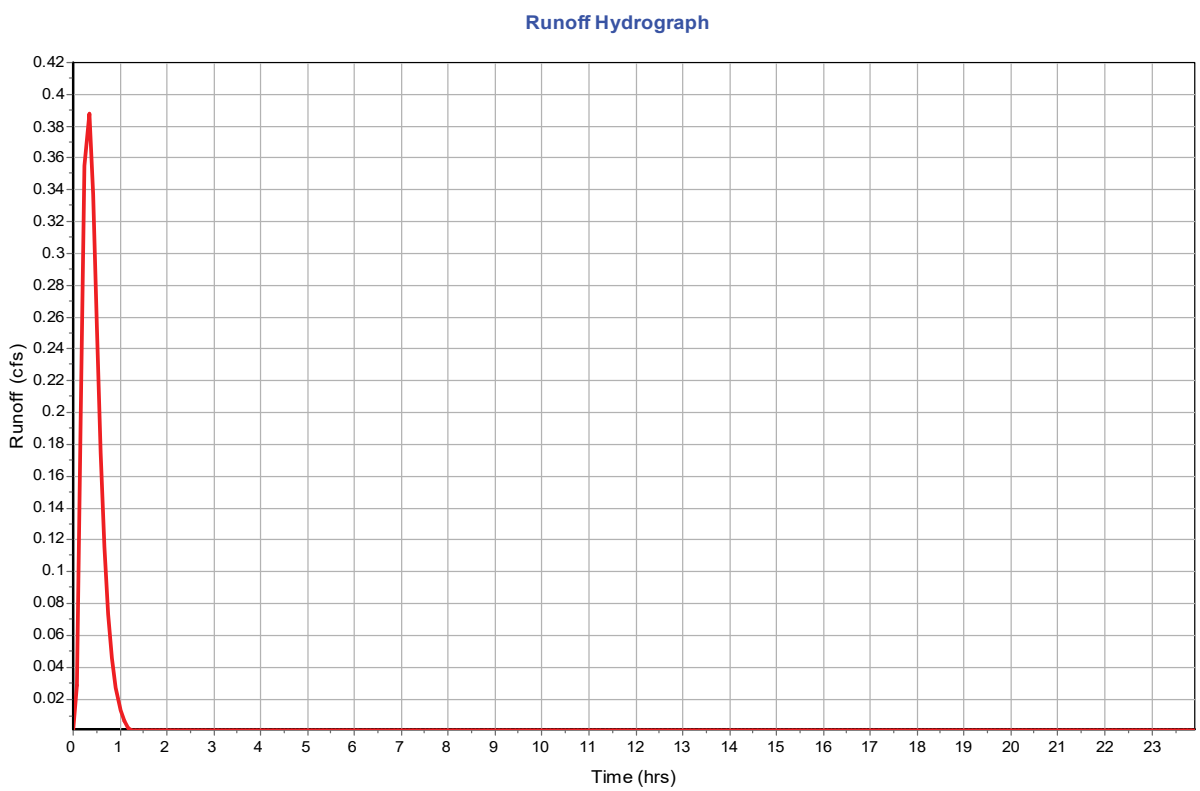
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.1	-	98
Composite Area & Weighted CN	0.1		98

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.63
Peak Runoff (cfs)	0.39
Weighted Curve Number	98
Time of Concentration (days hh:mm:ss)	0 00:15:00

Subbasin : 038





Subbasin : 039

Input Data

Area (ac)	0.5
Peak Rate Factor	484
Weighted Curve Number	86.5
Rain Gage ID	

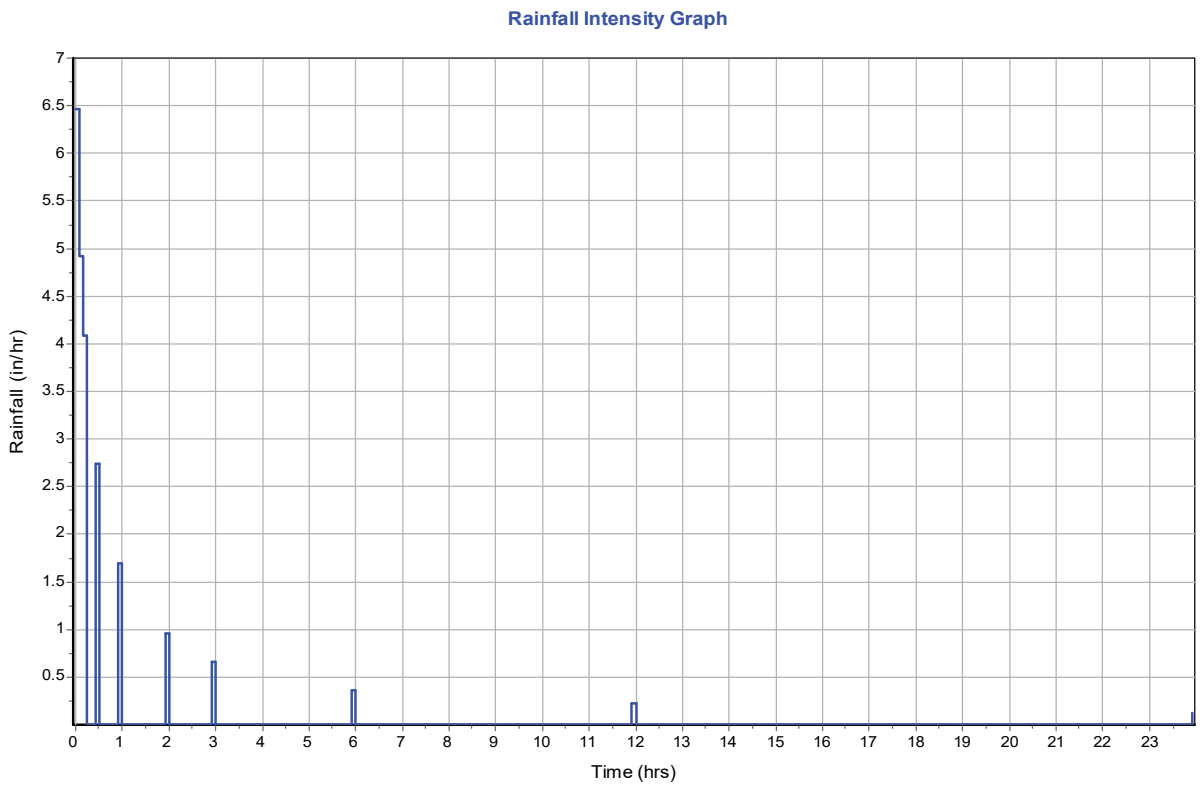
Composite Curve Number

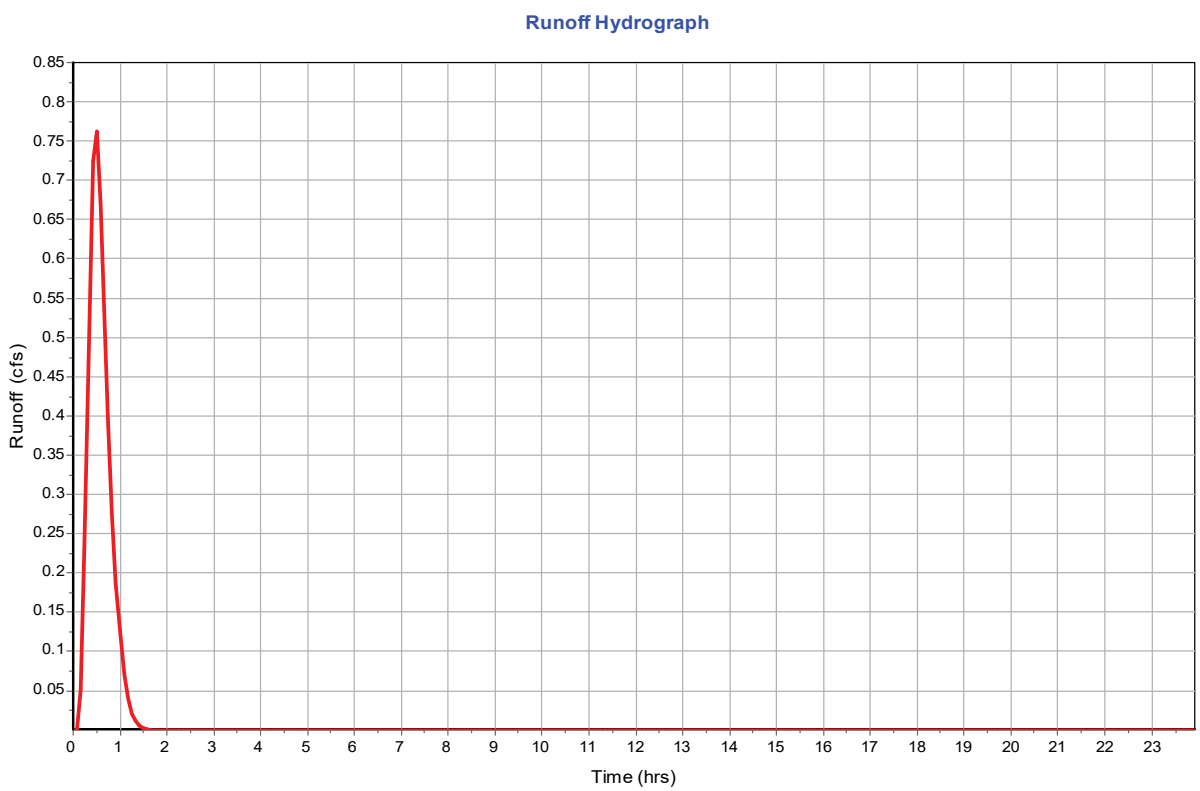
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.5	-	86.5
Composite Area & Weighted CN	0.5		86.5

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.76
Peak Runoff (cfs)	0.77
Weighted Curve Number	86.5
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 039





Subbasin : 040

Input Data

Area (ac)	1.28
Peak Rate Factor	484
Weighted Curve Number	86.5
Rain Gage ID	*

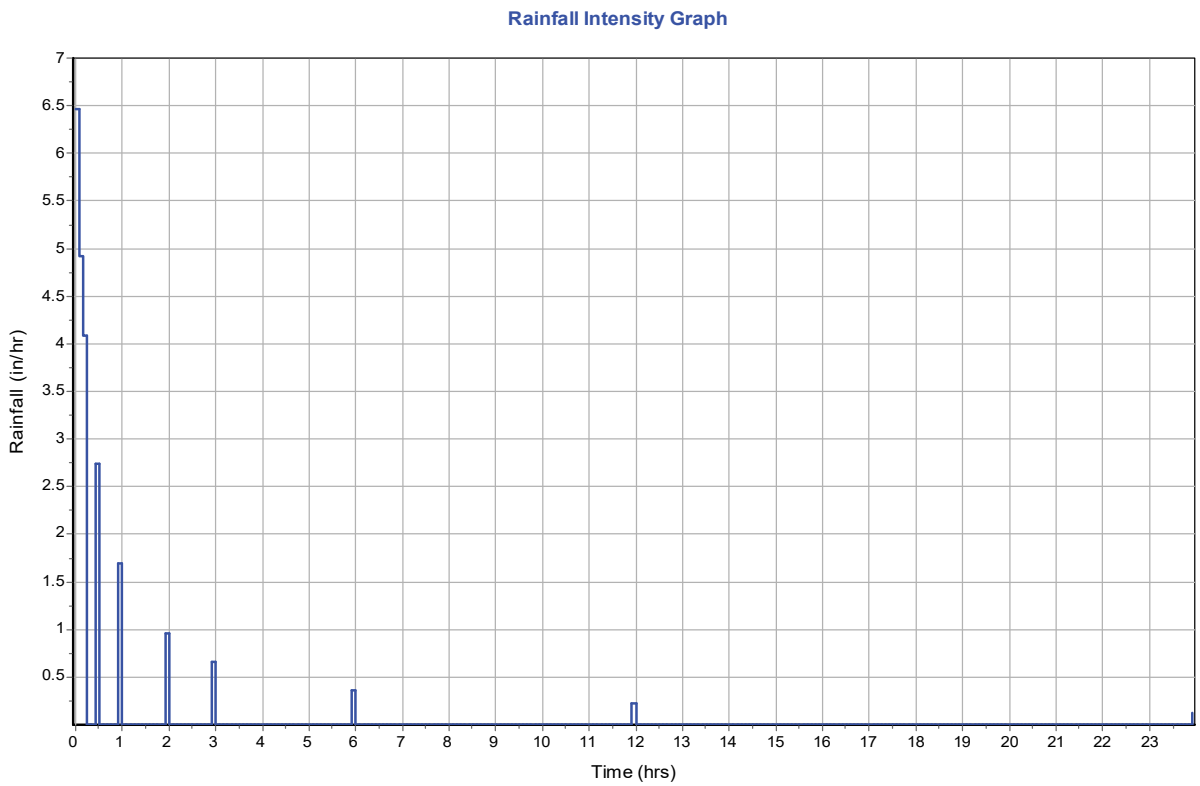
Composite Curve Number

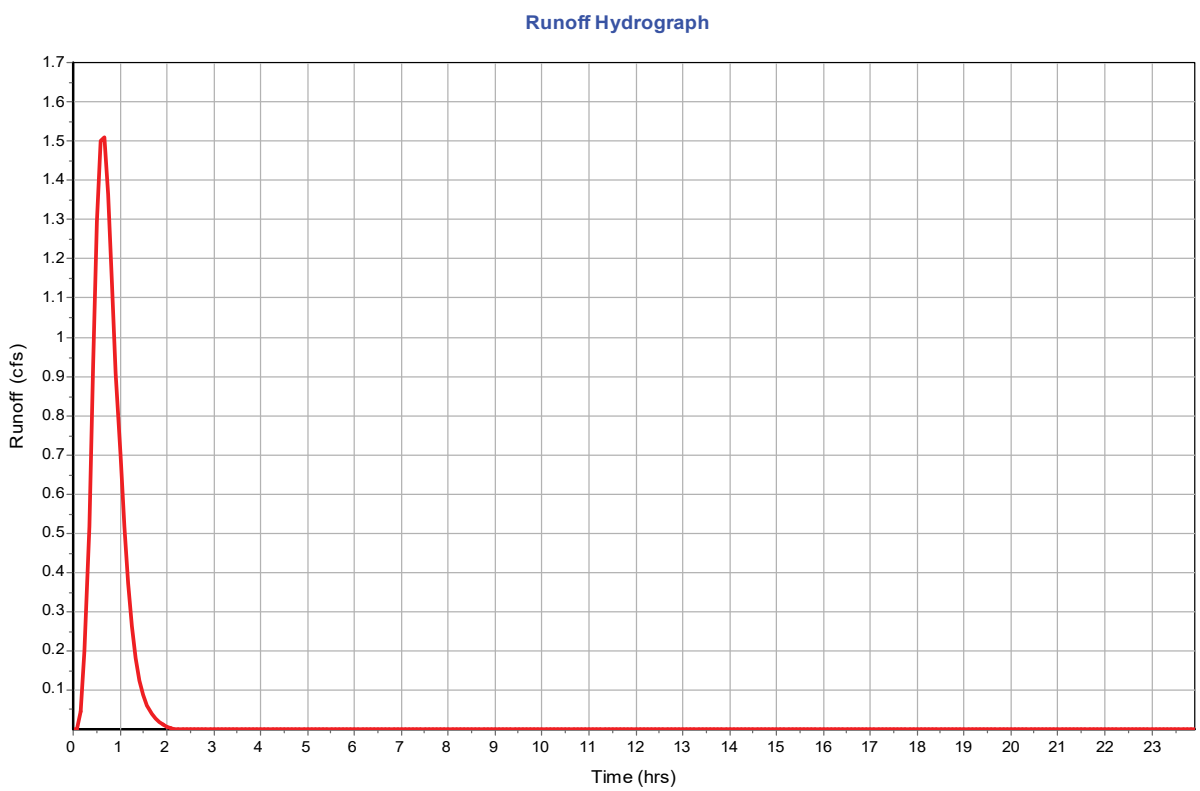
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.28	-	86.5
Composite Area & Weighted CN	1.28		86.5

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.76
Peak Runoff (cfs)	1.53
Weighted Curve Number	86.5
Time of Concentration (days hh:mm:ss)	0 00:35:00

Subbasin : 040





Subbasin : 041

Input Data

Area (ac)	0.05
Peak Rate Factor	484
Weighted Curve Number	86.5
Rain Gage ID	*

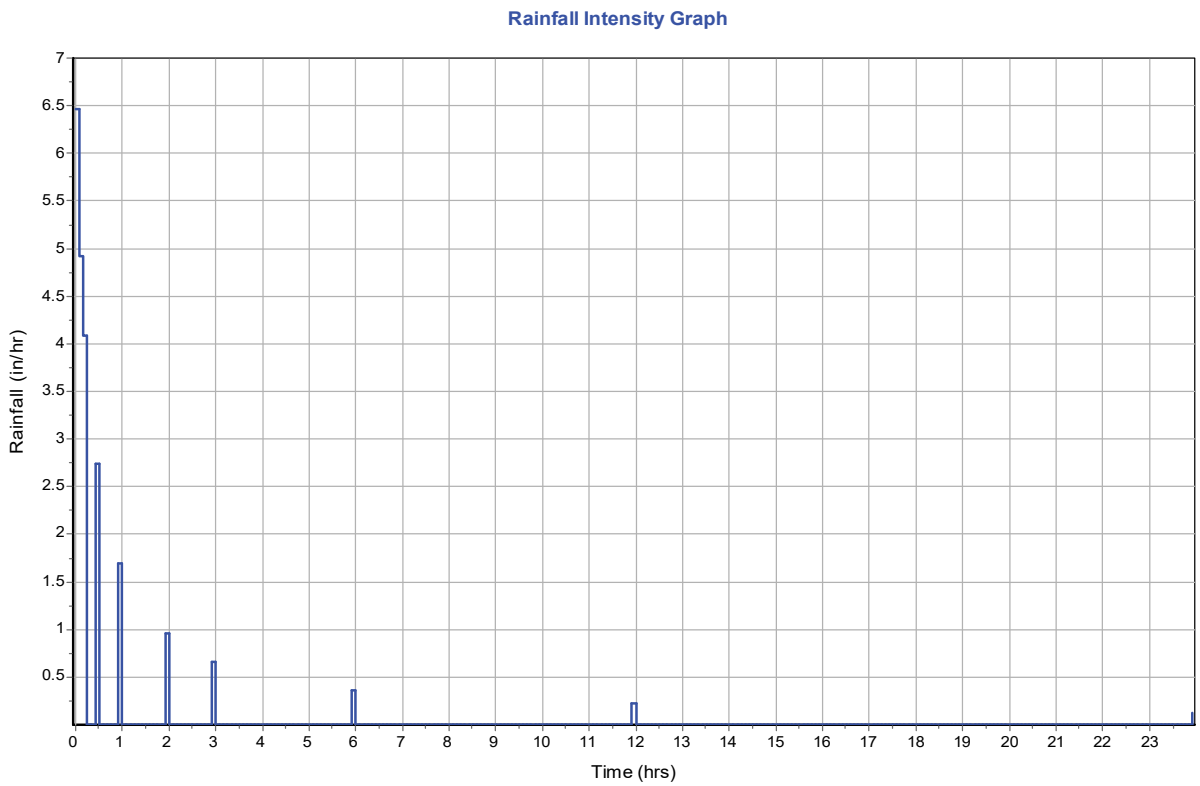
Composite Curve Number

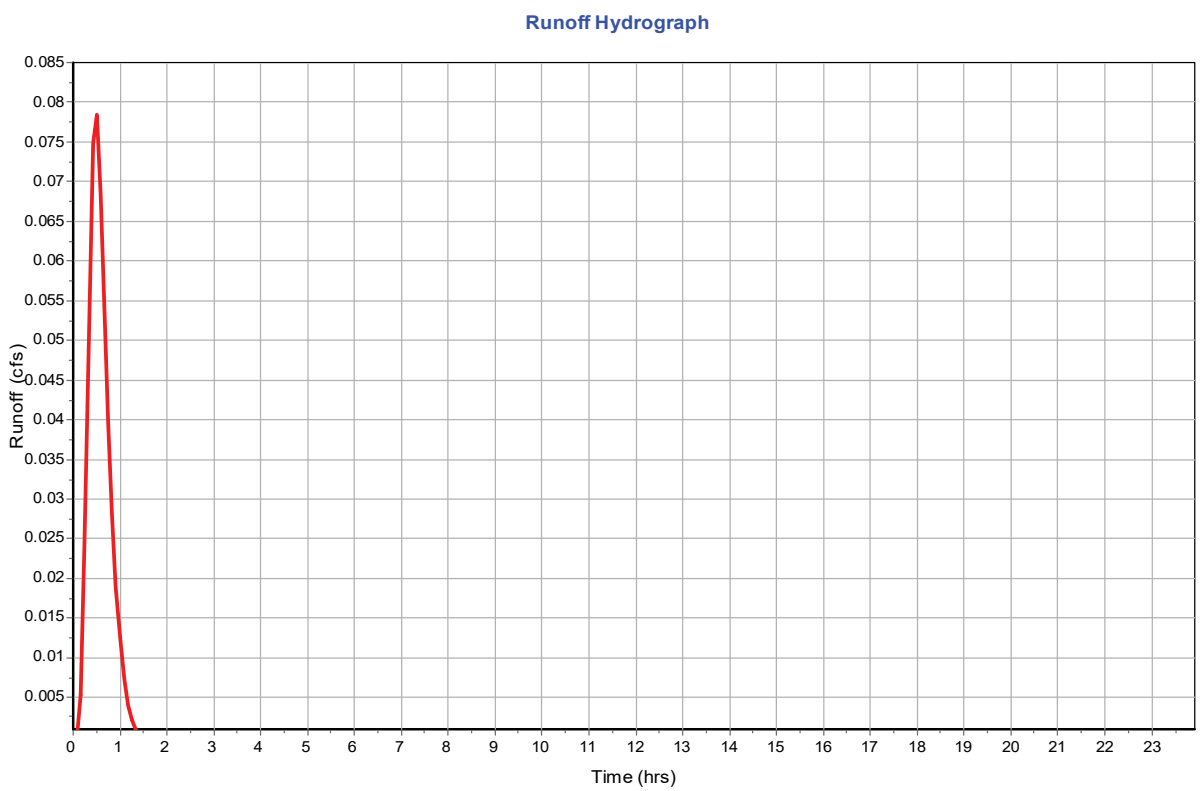
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	0.05	-	86.5
Composite Area & Weighted CN	0.05		86.5

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.76
Peak Runoff (cfs)	0.08
Weighted Curve Number	86.5
Time of Concentration (days hh:mm:ss)	0 00:22:00

Subbasin : 041





Subbasin : 100-Year

Input Data

Area (ac)	124.3
Peak Rate Factor	484
Weighted Curve Number	81.73
Rain Gage ID	*

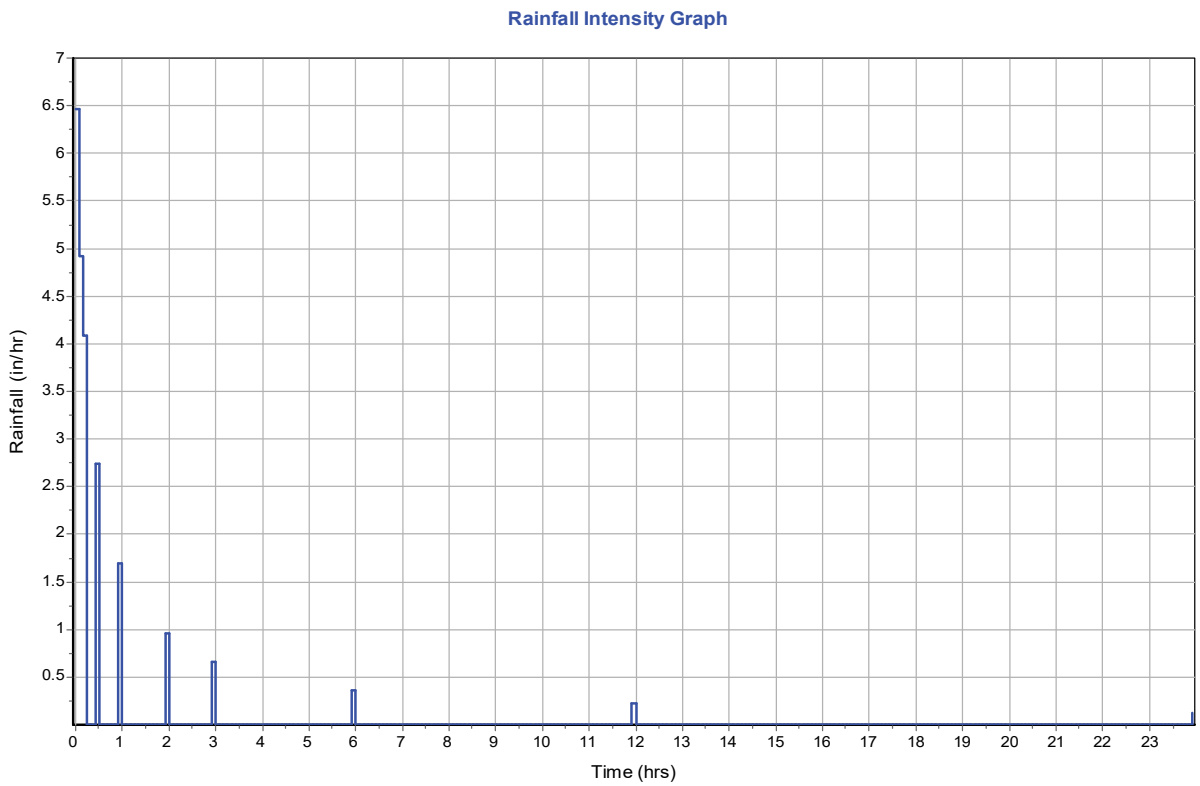
Composite Curve Number

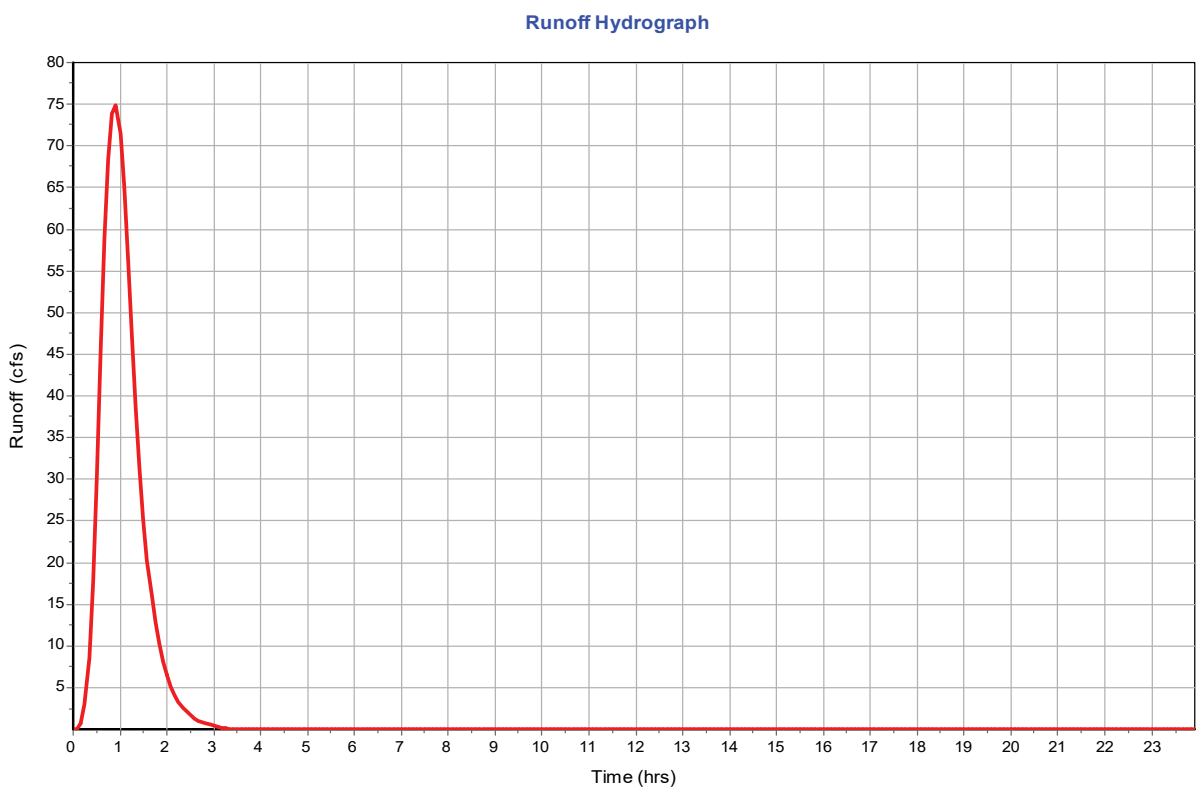
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.69	-	81.73
Composite Area & Weighted CN	1.69		81.73

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.54
Peak Runoff (cfs)	75.08
Weighted Curve Number	81.73
Time of Concentration (days hh:mm:ss)	0 00:56:47

Subbasin : 100-Year





Subbasin : FUTURE1

Input Data

Area (ac)	1.75
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

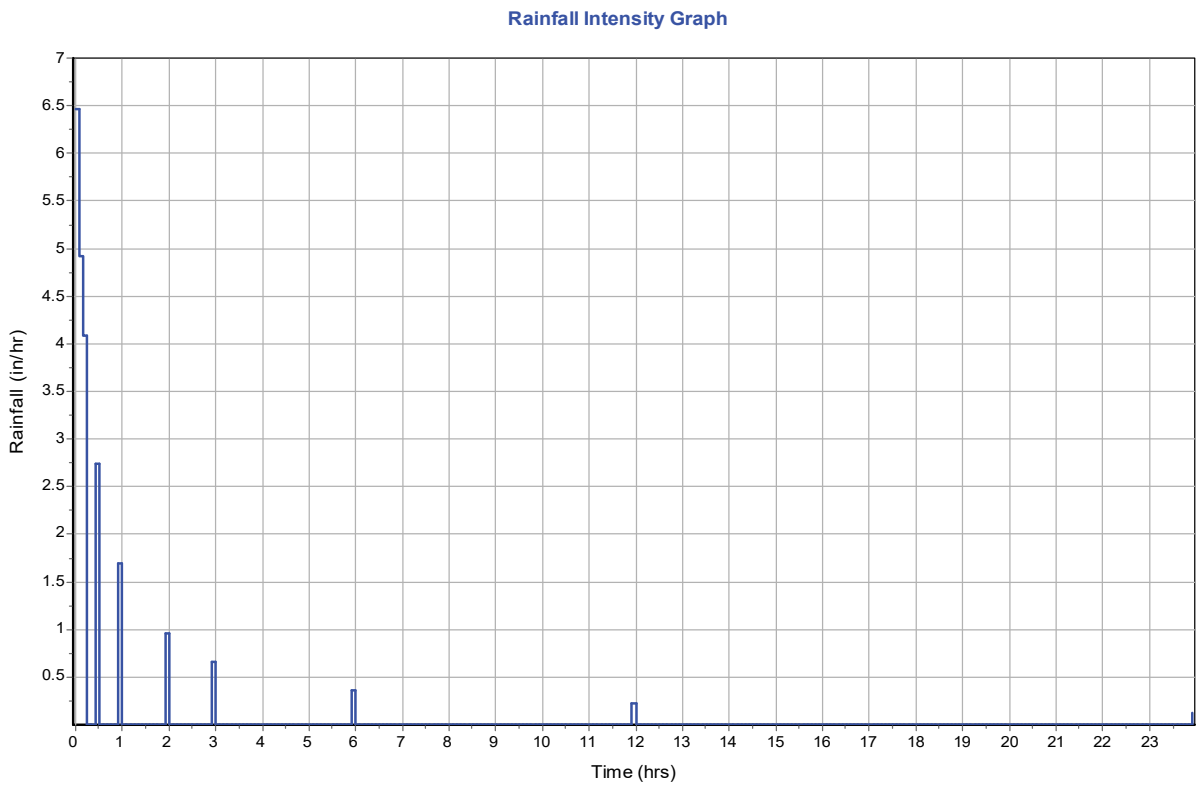
Composite Curve Number

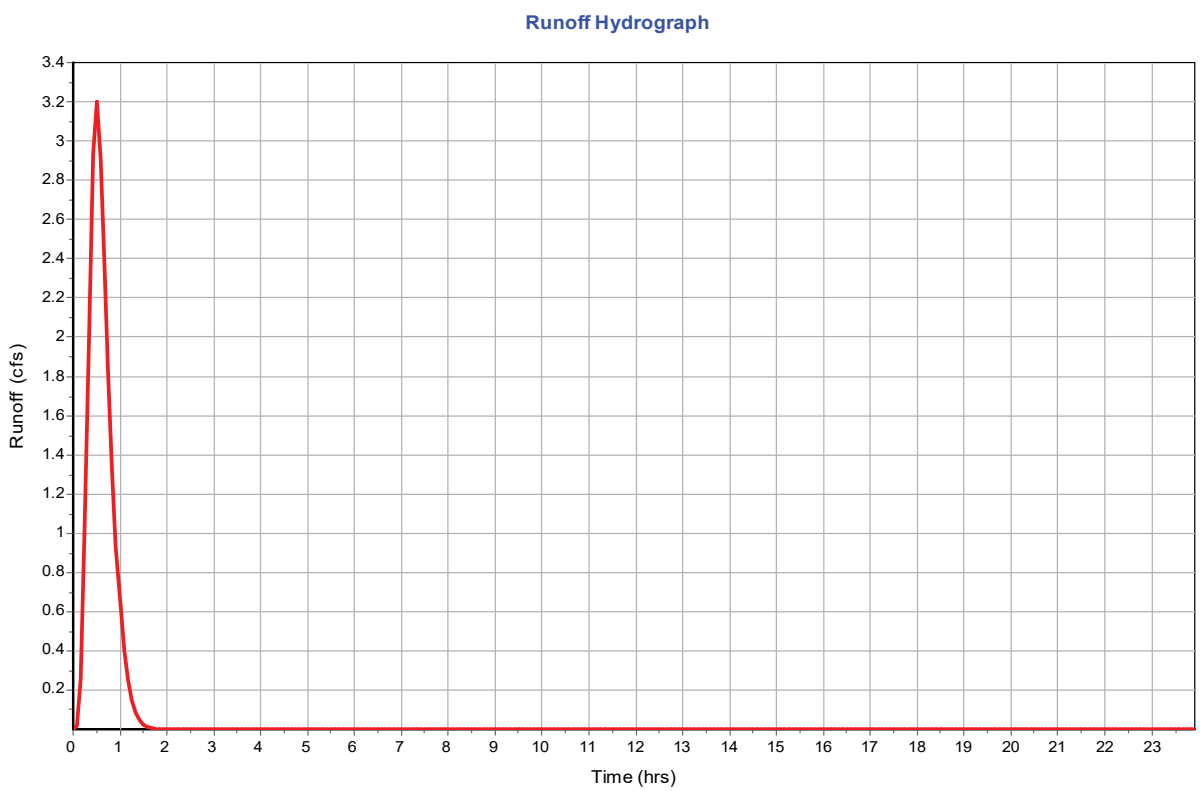
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	1.75	-	90
Composite Area & Weighted CN	1.75		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	3.2
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:25:00

Subbasin : FUTURE1





Subbasin : FUTURE2

Input Data

Area (ac)	7.99
Peak Rate Factor	484
Weighted Curve Number	91
Rain Gage ID	*

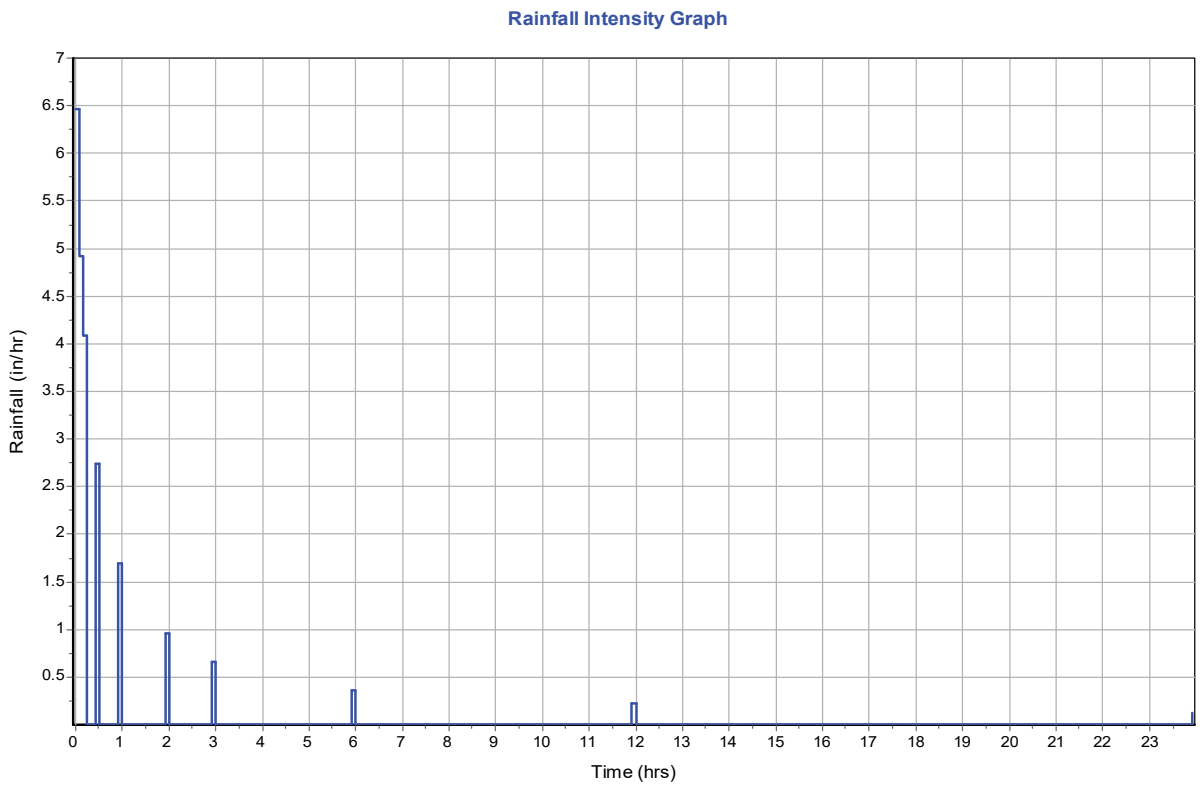
Composite Curve Number

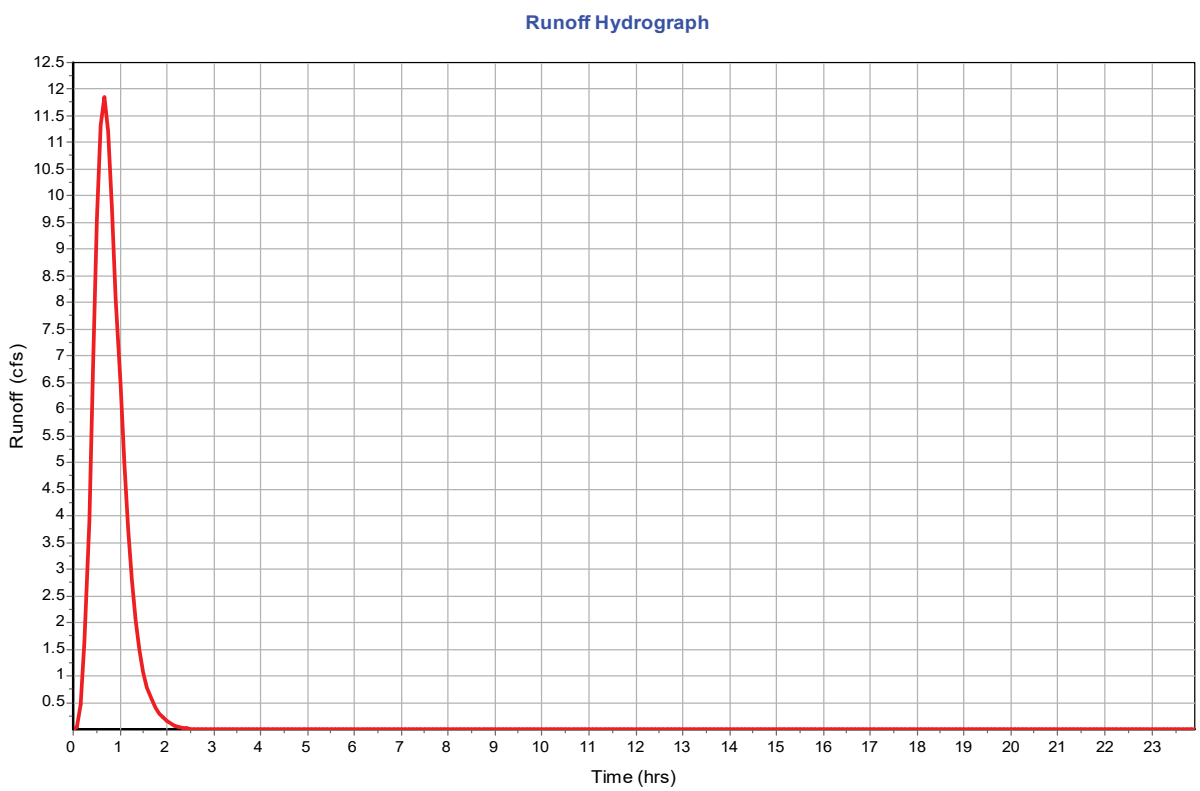
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	7.99	-	91
Composite Area & Weighted CN	7.99		91

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	1.04
Peak Runoff (cfs)	11.88
Weighted Curve Number	91
Time of Concentration (days hh:mm:ss)	0 00:40:00

Subbasin : FUTURE2





Subbasin : FUTURE3

Input Data

Area (ac)	12.63
Peak Rate Factor	484
Weighted Curve Number	87
Rain Gage ID	*

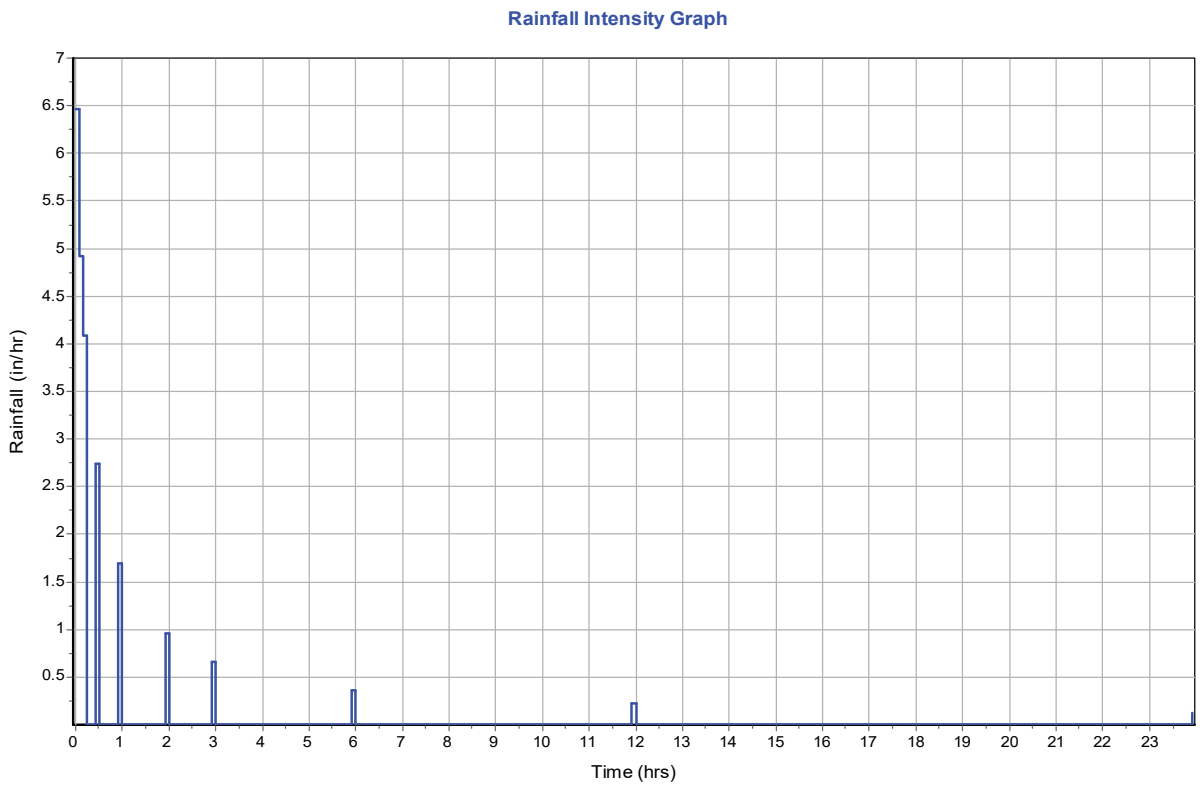
Composite Curve Number

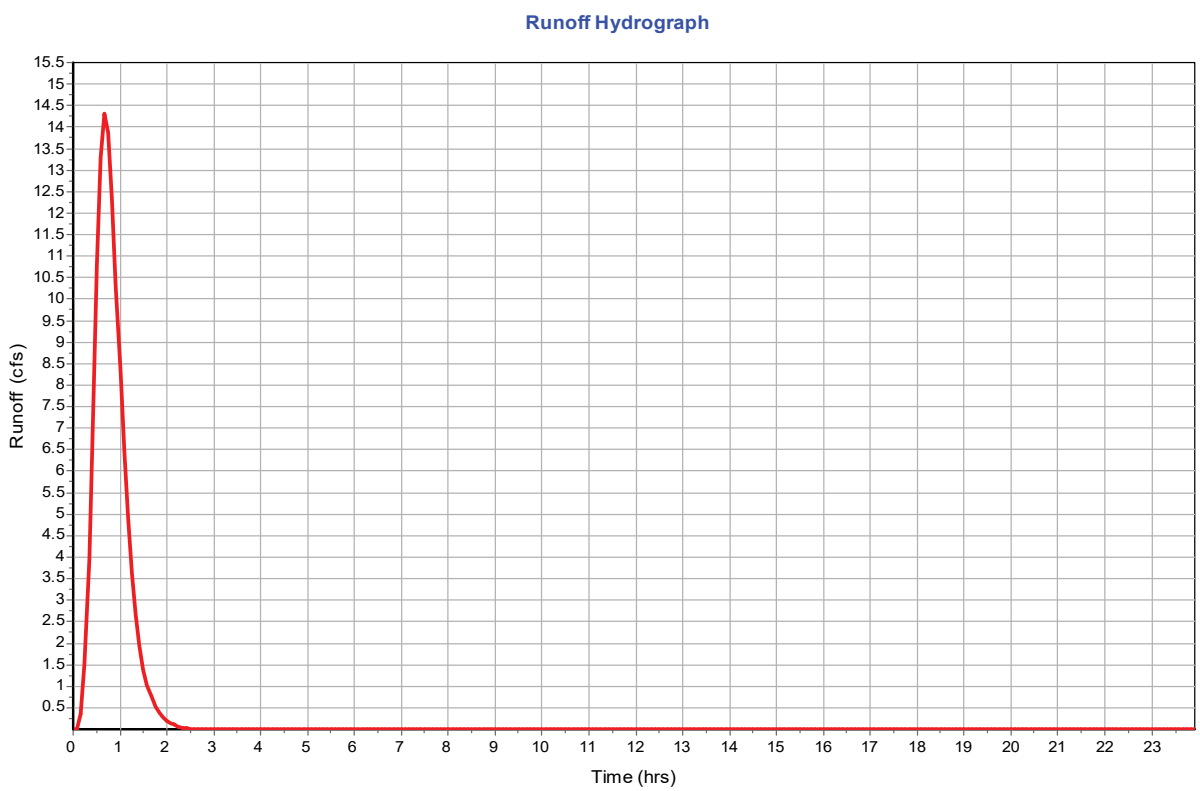
32 Soil/Surface Description	Area (acres)	Soil Group	Curve Number
-	12.63	-	87
Composite Area & Weighted CN	12.63		87

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.79
Peak Runoff (cfs)	14.37
Weighted Curve Number	87
Time of Concentration (days hh:mm:ss)	0 00:40:00

Subbasin : FUTURE3





Subbasin : FUTURE4

Input Data

Area (ac)	11.09
Peak Rate Factor	484
Weighted Curve Number	90
Rain Gage ID	*

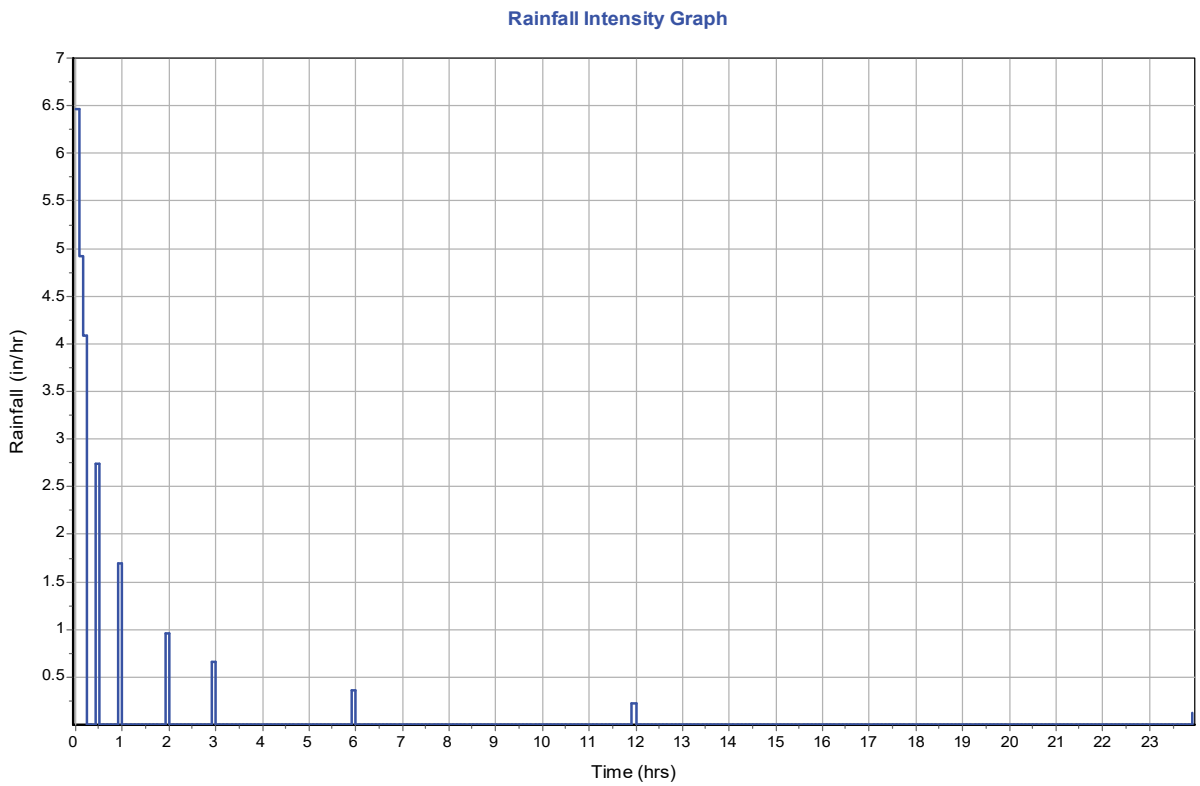
Composite Curve Number

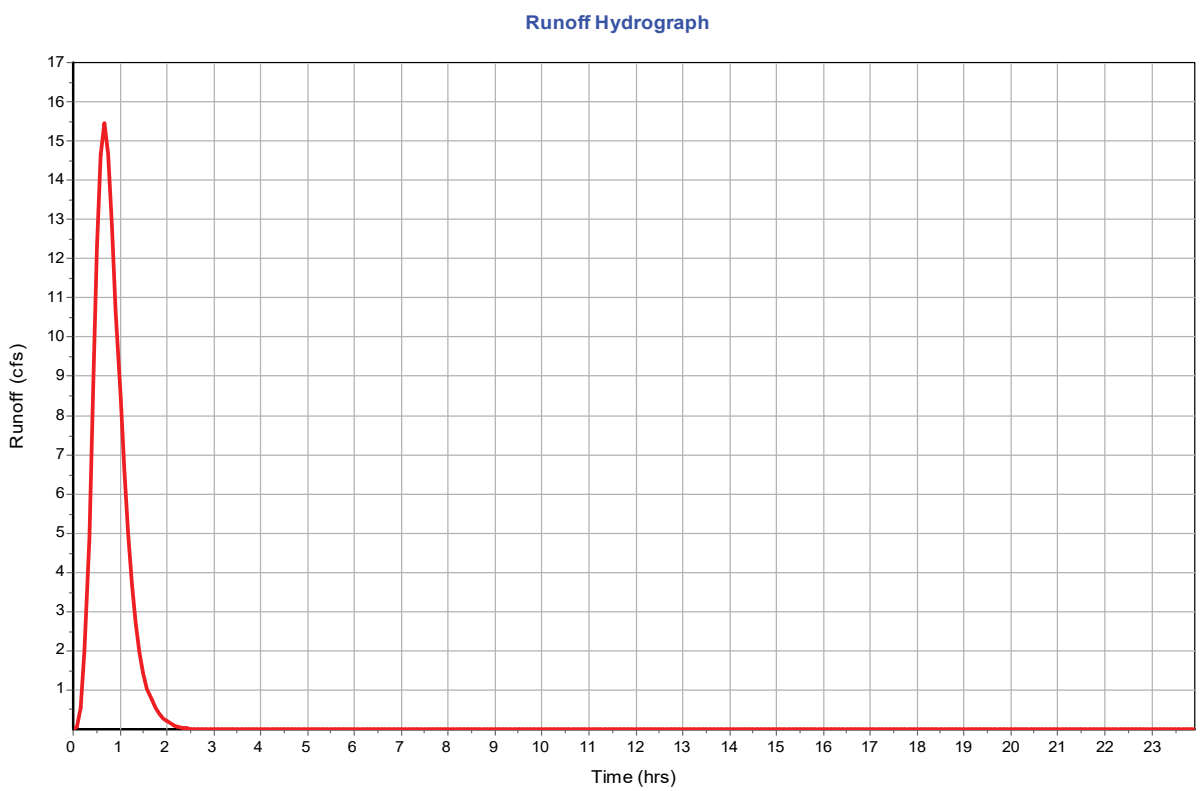
32	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
-	11.09	-	90
Composite Area & Weighted CN	11.09		90

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.97
Peak Runoff (cfs)	15.45
Weighted Curve Number	90
Time of Concentration (days hh:mm:ss)	0 00:40:00

Subbasin : FUTURE4





Subbasin : PH.1

Input Data

Area (ac)	53.2
Peak Rate Factor	484
Weighted Curve Number	72
Rain Gage ID	*

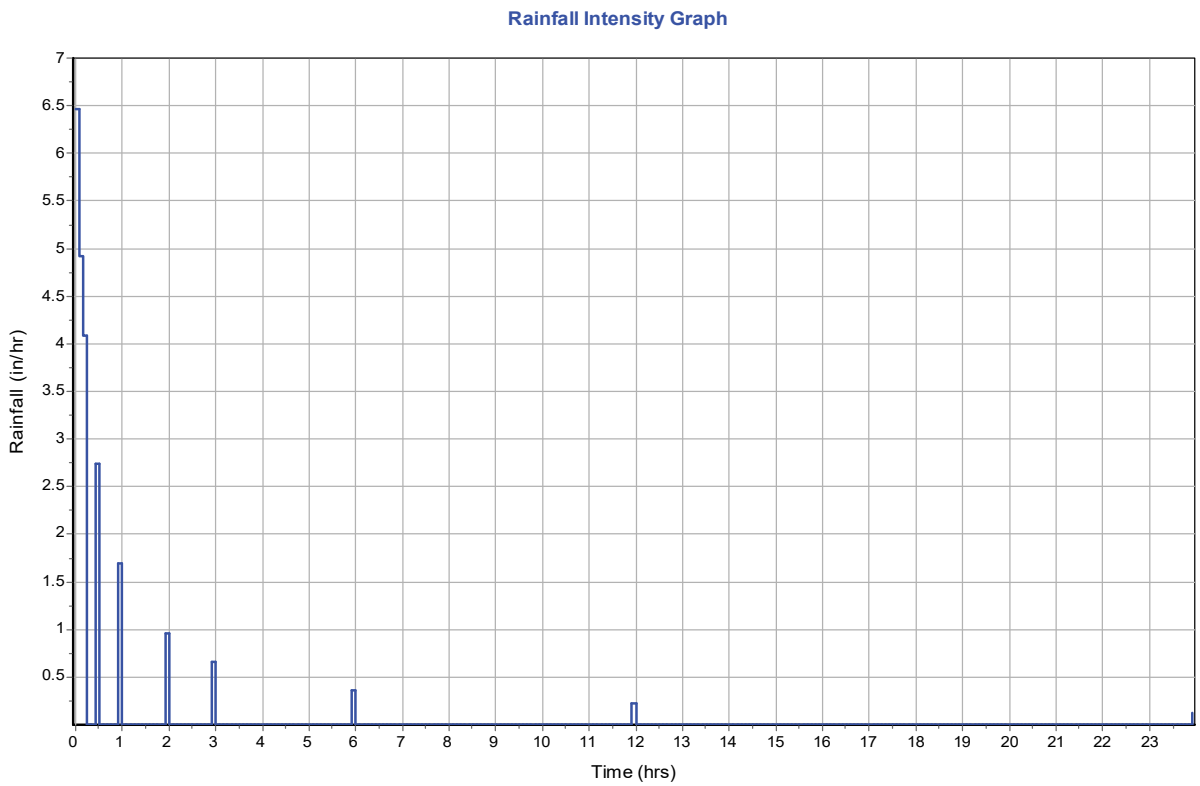
Composite Curve Number

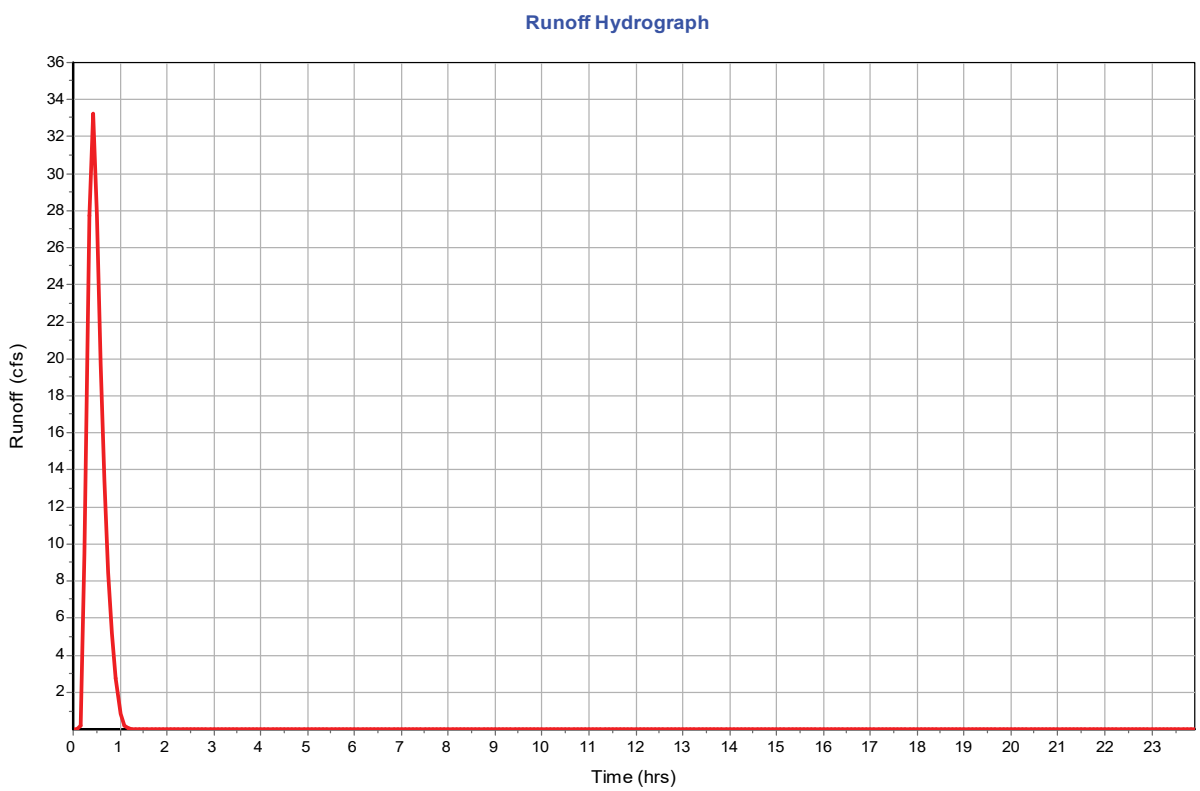
32	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
-	53.2	-	72
Composite Area & Weighted CN	53.2		72

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.23
Peak Runoff (cfs)	33.34
Weighted Curve Number	72
Time of Concentration (days hh:mm:ss)	0 00:10:00

Subbasin : PH.1





Subbasin : PH.4

Input Data

Area (ac)	26.17
Peak Rate Factor	484
Weighted Curve Number	72
Rain Gage ID	*

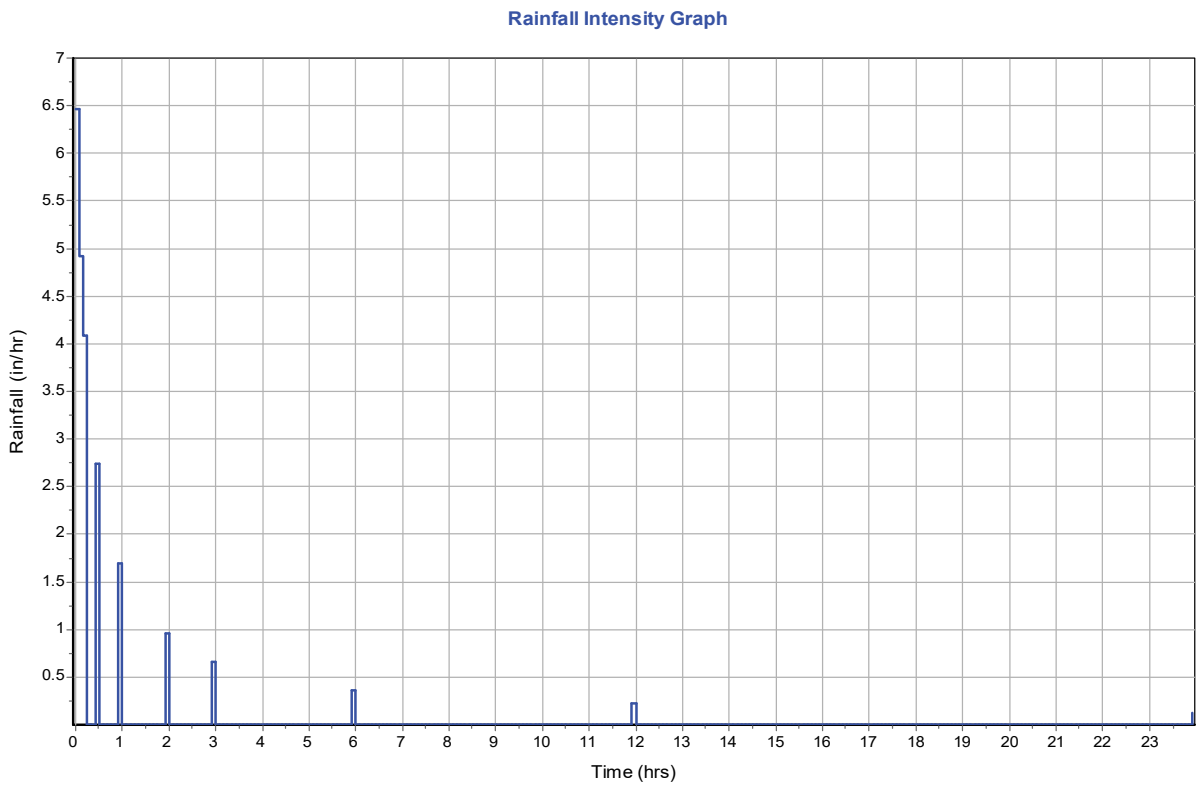
Composite Curve Number

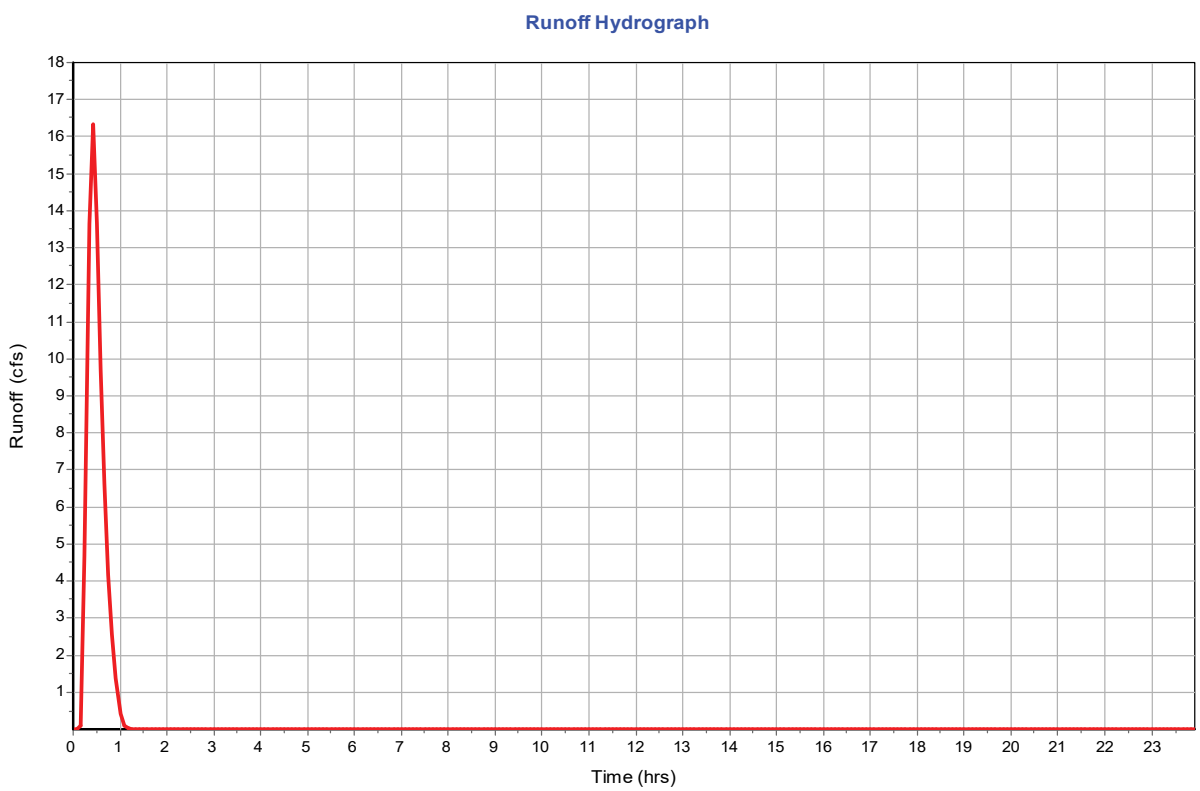
32	Area	Soil	Curve
Soil/Surface Description	(acres)	Group	Number
-	26.17	-	72
Composite Area & Weighted CN	26.17		72

Subbasin Runoff Results

Total Rainfall (in)	1.85
Total Runoff (in)	0.23
Peak Runoff (cfs)	16.4
Weighted Curve Number	72
Time of Concentration (days hh:mm:ss)	0 00:10:00

Subbasin : PH.4





Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft²)	Minimum Pipe Cover (in)
1	16B	6362.70	6367.98	5.28	6362.70	0.00	6367.98	0.00	0.00	0.00
2	22B	6348.29	6353.95	5.66	6348.29	0.00	6353.95	0.00	0.00	0.00
3	26B	6334.63	6340.06	5.43	6334.63	0.00	6340.06	0.00	0.00	0.00
4	36B	6317.52	6324.03	6.51	6317.52	0.00	6324.03	0.00	0.00	0.00
5	38B	6305.52	6311.43	5.91	6305.52	0.00	6311.43	0.00	0.00	0.00
6	42A	6290.51	6300.10	9.59	6290.51	0.00	6300.10	0.00	0.00	0.00
7	4B	6316.50	6323.03	6.53	6316.50	0.00	6323.03	0.00	0.00	0.00
8	6B	6308.53	6314.43	5.90	6308.53	0.00	6314.43	0.00	0.00	0.00
9	4C	6314.29	6325.03	10.74	6314.29	0.00	6325.03	0.00	0.00	0.00
10	30B	6321.54	8327.23	2005.69	6321.54	0.00	8327.23	0.00	0.00	0.00
11	30C	6320.57	6326.14	5.57	6320.57	0.00	6326.14	0.00	0.00	0.00
12	33B	6319.46	6326.67	7.21	6319.46	0.00	6326.67	0.00	0.00	0.00
13	20B	6351.39	6355.35	3.96	6351.39	0.00	6355.35	0.00	0.00	0.00
14	11C	6373.53	6379.03	5.50	6373.53	0.00	6379.03	0.00	0.00	0.00
15	11B	6387.50	6391.76	4.26	6387.50	0.00	6391.76	0.00	0.00	0.00
16	Existing-1B	6366.42	6370.00	3.58	6366.42	0.00	6370.00	0.00	0.00	0.00
17	Existing-1C	6365.74	6369.49	3.75	6365.74	0.00	6369.49	0.00	0.00	0.00
18	0	6327.29	6330.79	3.50	6327.29	0.00	6330.79	0.00	0.00	0.00
19	OFFSITE	6397.29	6402.09	4.80	6397.29	0.00	6402.09	0.00	0.00	0.00
20	Existing-1D	6365.41	6368.82	3.41	6365.41	0.00	6368.82	0.00	0.00	0.00
21	42B	6287.86	6301.00	13.14	6287.86	0.00	6301.00	0.00	0.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Tir Floc Occurr (days hh:
1	16B	53.52	14.30	6364.19	1.49	0.00	3.79	6363.36	0.66	0 00:30	0 0
2	22B	69.67	11.86	6349.94	1.65	0.00	4.01	6348.96	0.67	0 01:34	0 0
3	26B	72.82	0.00	6336.32	1.69	0.00	3.74	6335.42	0.79	0 00:35	0 0
4	36B	82.29	0.00	6319.24	1.72	0.00	4.79	6318.29	0.77	0 00:36	0 0
5	38B	105.01	0.00	6307.43	1.91	0.00	4.00	6306.39	0.87	0 00:34	0 0
6	42A	33.22	33.22	6399.07	1.78	0.00	3.02	6397.82	0.53	0 00:30	0 0
7	4B										
8	6B										
9	4C										
10	30B										
11	30C										
12	33B										
13	20B										
14	11C										
15	11B										
16	Existing-1B										
17	Existing-1C										
18	0										
19	OFFSITE										
20	Existing-1D										
21	42B										

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness
1	RD38	382.74	6312.63	6.43	6300.00	3.75	12.63	3.3000	User-Defined			
2	RD-EXISTING	363.00	6375.21	5.11	6368.38	4.19	6.83	1.8800	User-Defined			
3	R1	32.73	6331.04	5.35	6330.00	6.50	1.04	3.1800	User-Defined	0.500	14.500	0.0320
4	R10	391.72	6311.61	3.75	6300.41	4.00	11.20	2.8600	User-Defined	0.500	14.500	0.0320
5	R11	195.92	6392.18	3.75	6371.17	3.75	21.01	10.7200	User-Defined	0.500	14.500	0.0320
6	R12	217.47	6397.09	5.00	6371.17	5.22	25.92	11.9200	User-Defined	0.500	14.500	0.0320
7	R13	51.10	6371.17	3.75	6368.38	4.19	2.79	5.4600	User-Defined	0.500	14.500	0.0320
8	R14	206.59	6371.17	5.22	6357.10	5.72	14.07	6.8100	User-Defined	0.500	14.500	0.0320
9	R16	151.24	6368.38	4.31	6357.10	3.75	11.28	7.4600	User-Defined	0.500	14.500	0.0320
10	R17	41.06	6357.10	3.75	6354.40	4.00	2.70	6.5800	User-Defined	0.500	14.500	0.0320
11	R18	210.84	6357.10	5.72	6343.08	5.94	14.02	6.6500	User-Defined	0.500	14.500	0.0320
12	R19	310.92	6355.79	3.75	6354.40	4.00	1.39	0.4500	User-Defined	0.500	14.500	0.0320
13	R2	50.24	6331.21	5.25	6330.00	0.00	1.21	2.4100	User-Defined	0.500	14.500	0.0320
14	R20	349.27	6355.85	3.95	6354.41	4.75	1.44	0.4100	User-Defined	0.500	14.500	0.0320
15	R22	159.03	6354.41	4.75	6343.08	3.75	11.33	7.1200	User-Defined	0.500	14.500	0.0320
16	R23	51.09	6343.08	3.75	6340.74	3.75	2.34	4.5800	User-Defined	0.500	14.500	0.0320
17	R24	366.42	6343.08	5.94	6326.76	5.50	16.32	4.4500	User-Defined	0.500	14.500	0.0320
18	R26	310.76	6340.75	4.26	6327.78	3.75	12.97	4.1700	User-Defined	0.500	14.500	0.0320
19	R27	36.13	6327.78	3.75	6324.69	3.75	3.09	8.5500	User-Defined	0.500	14.500	0.0320
20	R28	39.09	6326.76	5.50	6324.73	5.88	2.03	5.1900	User-Defined	0.500	14.500	0.0320
21	R29	405.03	6327.91	3.75	6324.69	3.75	3.22	0.8000	User-Defined	0.500	14.500	0.0320
22	R3	21.57	6323.63	3.75	6323.50	0.00	0.13	0.6000	User-Defined	0.500	14.500	0.0320
23	R30	417.39	6327.93	4.26	6324.69	4.73	3.24	0.7800	User-Defined	0.500	14.500	0.0320
24	R32	175.57	6324.69	4.73	6312.63	3.75	12.06	6.8700	User-Defined	0.500	14.500	0.0320
25	R33	326.50	6329.79	4.23	6324.73	5.88	5.06	1.5500	User-Defined	0.500	14.500	0.0320
26	R34	301.57	6329.79	3.75	6324.73	6.03	5.06	1.6800	User-Defined	0.500	14.500	0.0320
27	R36	217.88	6324.73	6.03	6312.63	6.43	12.10	5.5500	User-Defined	0.500	14.500	0.0320
28	R37	48.05	6312.63	3.75	6312.14	5.95	0.49	1.0200	User-Defined	0.500	14.500	0.0320
29	R5	350.95	6319.56	3.75	6313.49	3.75	6.07	1.7300	User-Defined	0.500	14.500	0.0320
30	R6	358.03	6319.80	8.13	6312.97	5.73	6.83	1.9100	User-Defined	0.500	14.500	0.0320
31	R7	334.48	6313.49	3.75	6311.61	3.75	1.88	0.5600	User-Defined	0.500	14.500	0.0320
32	R8	269.01	6312.97	5.73	6312.14	5.95	0.83	0.3100	User-Defined	0.500	14.500	0.0320

Channel Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	I N
1	RD38	0.01	0 00:35	33.77	0.00	10.48	0.05	0.03	0.06	0.00	
2	RD-EXISTING	0.12	0 00:35	32.03	0.00	1.35	4.84	0.13	0.25	0.00	
3	R1	0.03	0 00:25	62.04	0.00	3.02	1.08	0.04	0.07	0.00	
4	R10	10.59	0 00:45	65.00	0.16	8.88	0.41	0.30	0.64	0.00	
5	R11	0.01	0 00:25	44.26	0.00	0.87	0.98	0.13	0.25	0.00	
6	R12	7.04	0 00:45	49.14	0.14	11.58	0.30	0.26	0.60	0.00	
7	R13	0.05	0 00:35	51.74	0.00	3.94	0.64	0.04	0.09	0.00	
8	R14	0.01	0 00:27	48.58	0.00	2.13	0.32	0.14	0.28	0.00	
9	R16	2.52	0 00:33	48.55	0.05	12.25	0.29	0.20	0.41	0.00	
10	R17	0.21	0 00:45	12.59	0.02	0.86	6.03	0.21	0.41	0.00	
11	R18	0.27	0 00:45	29.22	0.01	3.12	0.27	0.12	0.24	0.00	
12	R19	0.14	0 00:35	12.16	0.01	1.19	4.89	0.13	0.26	0.00	
13	R2	0.20	0 00:35	50.56	0.00	8.89	0.30	0.06	0.11	0.00	
14	R20	0.00	0 00:00	40.54	0.00	0.00		0.10	0.21	0.00	
15	R22	0.66	0 00:45	39.74	0.02	7.08	0.86	0.11	0.23	0.00	
16	R23	0.06	0 00:35	38.70	0.00	3.60	1.44	0.05	0.10	0.00	
17	R24	0.04	0 00:25	55.40	0.00	2.44	0.25	0.14	0.29	0.00	
18	R26	0.03	0 00:47	42.91	0.00	2.69	0.24	0.10	0.20	0.00	
19	R27	0.33	0 00:45	16.79	0.02	0.73	9.25	0.22	0.43	0.00	
20	R28	0.00	0 00:00	14.71	0.00	0.00		0.00	0.00	0.00	
21	R29	0.03	0 00:35	16.69	0.00	0.38	18.31	0.10	0.20	0.00	
22	R3	0.30	0 00:35	49.65	0.01	9.07	0.32	0.07	0.14	0.00	
23	R30	0.14	0 00:25	23.44	0.01	1.45	3.75	0.13	0.26	0.00	
24	R32	0.84	0 00:35	24.54	0.03	4.96	1.01	0.16	0.32	0.00	
25	R33	0.13	0 00:35	44.37	0.00	7.19	0.51	0.05	0.10	0.00	
26	R34	0.00	0 00:00	19.01	0.00	0.00		0.12	0.23	0.00	
27	R36	0.05	0 00:35	24.91	0.00	0.72	8.12	0.11	0.22	0.00	
28	R37	0.14	0 00:45	26.00	0.01	0.85	7.02	0.15	0.30	0.00	
29	R5	0.18	0 00:35	14.20	0.01	1.73	3.22	0.12	0.24	0.00	
30	R6	0.40	0 00:45	10.46	0.04	0.98	4.58	0.22	0.43	0.00	
31	R7										
32	R8										

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manr Rougl
1	10	19.20	6307.86	0.00	6307.77	2.25	0.09	0.4700	CIRCULAR	15.000	15.000	0.
2	13	22.10	6367.42	0.00	6367.20	1.25	0.22	1.0000	CIRCULAR	15.000	15.000	0.
3	14	52.28	165.65	-6200.30	161.94	-6200.76	3.71	7.1000	CIRCULAR	30.000	30.000	0.
4	15	23.00	6364.19	0.00	6364.07	0.00	0.12	0.5200	CIRCULAR	15.000	15.000	0.
5	16A	36.40	6364.07	0.00	6363.70	1.00	0.37	1.0200	CIRCULAR	18.000	18.000	0.
6	16B	146.20	6362.70	0.00	6351.88	0.50	10.82	7.4000	CIRCULAR	30.000	30.000	0.
7	8	263.20	6307.24	0.00	6306.19	0.00	1.05	0.4000	CIRCULAR	36.000	36.000	0.
8	9	41.50	6306.19	0.00	6306.02	0.50	0.17	0.4100	CIRCULAR	36.000	36.000	0.
9	17	22.00	6353.35	0.00	6353.13	1.75	0.22	1.0000	CIRCULAR	15.000	15.000	0.
10	18	44.80	6351.38	0.00	6348.29	0.00	3.09	6.9000	CIRCULAR	36.000	36.000	0.
11	19	26.40	6352.04	0.00	6351.90	0.00	0.14	0.5300	CIRCULAR	12.000	12.000	0.
12	21	23.80	6350.40	0.00	6350.16	0.50	0.24	1.0100	CIRCULAR	18.000	18.000	0.
13	22A	36.30	6349.66	0.00	6349.29	1.00	0.37	1.0200	CIRCULAR	24.000	24.000	0.
14	22B	145.60	6348.29	0.00	6337.14	0.00	11.15	7.6600	CIRCULAR	36.000	36.000	0.
15	23	22.00	6339.33	0.00	6338.89	1.75	0.44	2.0000	CIRCULAR	15.000	15.000	0.
16	24	45.00	6337.14	0.00	6334.63	0.00	2.51	5.5800	CIRCULAR	36.000	36.000	0.
17	25	24.30	6336.99	0.00	6336.74	0.25	0.25	1.0300	CIRCULAR	15.000	15.000	0.
18	26A	36.00	6336.49	0.00	6336.13	1.50	0.36	1.0000	CIRCULAR	18.000	18.000	0.
19	26B	310.70	6334.63	0.00	6321.26	0.00	13.37	4.3000	CIRCULAR	36.000	36.000	0.
20	27	22.60	6324.03	0.00	6323.01	1.75	1.02	4.5100	CIRCULAR	15.000	15.000	0.
21	28	40.90	6321.26	0.00	6317.52	0.00	3.74	9.1400	CIRCULAR	36.000	36.000	0.
22	32	50.50	6319.96	0.00	6318.51	0.99	1.45	2.8700	CIRCULAR	24.000	24.000	0.
23	34	23.00	6326.04	0.00	6325.81	0.25	0.23	1.0000	CIRCULAR			
24	35	22.00	6318.85	0.00	6318.70	0.00	0.15	0.6800	CIRCULAR	24.000	24.000	0.
25	36A	14.60	6318.70	0.00	6318.51	0.99	0.19	1.3000	CIRCULAR	24.000	24.000	0.
26	36B	186.70	6317.52	0.00	6306.20	0.00	11.32	6.0600	CIRCULAR	36.000	36.000	0.
27	38A	22.80	6306.20	0.00	6305.52	0.00	0.68	2.9800	CIRCULAR	42.000	42.000	0.
28	41	29.30	6295.83	0.00	6295.52	5.01	0.31	1.0600	CIRCULAR			
29	40	17.00	6296.25	0.00	6296.08	0.25	0.17	1.0000	CIRCULAR			
30	38B	375.40	6305.52	0.00	6290.51	0.00	15.01	4.0000	CIRCULAR			
31	7	22.60	6309.74	0.00	6309.51	2.27	0.23	1.0200	CIRCULAR			
32	5	24.30	6315.81	0.00	6315.56	3.89	0.25	1.0300	CIRCULAR			
33	29	23.40	6324.16	0.00	6323.92	0.25	0.24	1.0300	CIRCULAR			
34	37	21.00	6308.88	0.00	6308.67	2.47	0.21	1.0000	CIRCULAR			
35	31	23.00	6320.94	0.00	6320.71	0.75	0.23	1.0000	CIRCULAR			
36	42A	52.90	6290.51	0.00	6287.86	0.00	2.65	5.0100	CIRCULAR			
37	39	20.20	6296.41	0.00	6295.52	5.01	0.89	4.4100	CIRCULAR			
38	42B	138.10	6287.86	0.00	6280.96	2000.00	6.90	5.0000	CIRCULAR			
39	4A	14.60	6316.70	0.00	6316.50	0.00	0.20	1.3700	CIRCULAR			
40	3	17.90	6319.88	0.00	6319.66	3.16	0.22	1.2300	CIRCULAR			
41	6B	157.70	6308.53	0.00	6307.74	0.50	0.79	0.5000	CIRCULAR			
42	6A	188.50	6311.67	0.00	6309.03	0.50	2.64	1.4000	CIRCULAR			
43	4B	157.20	6316.50	0.00	6314.29	0.00	2.21	1.4100	CIRCULAR			
44	4C	186.80	6314.29	0.00	6311.67	0.00	2.62	1.4000	CIRCULAR			
45	30A	81.30	6323.67	0.00	6322.04	0.50	1.63	2.0000	CIRCULAR			

Pipe Results

SN	Element ID	Peak Flow (cfs)	Time of Peak Flow Occurrence (days hh:mm)	Design Flow Capacity (cfs)	Peak Flow/ Design Flow Ratio	Peak Flow Velocity (ft/sec)	Travel Time (min)	Peak Flow Depth (ft)	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged (min)	Froud Numbe
1	10	0.87	0 00:35	4.42	0.20	2.53	0.13	0.41	0.32	0.00	
2	13	0.43	0 00:25	6.45	0.07	2.70	0.14	0.28	0.23	0.00	
3	14	40.59	0 00:30	102.27	0.40	12.71	0.07	1.53	0.62	0.00	
4	15	4.19	0 00:33	4.67	0.90	3.78	0.10	1.06	0.85	0.00	
5	16A	20.94	0 00:32	42.13	0.50	4.65	0.94	1.79	0.61	0.00	
6	16B	21.72	0 00:32	42.69	0.51	5.20	0.13	1.70	0.57	0.00	
7	8	0.32	0 00:27	6.46	0.05	2.51	0.15	0.20	0.16	0.00	
8	9	56.96	0 00:34	175.17	0.33	44.58	0.02	1.66	0.55	0.00	
9	17	0.72	0 00:45	2.59	0.28	2.11	0.21	0.46	0.46	0.00	
10	18	1.43	0 00:45	10.55	0.14	3.64	0.11	0.41	0.27	0.00	
11	19	0.46	0 00:34	9.14	0.05	3.40	0.11	0.45	0.50	0.00	
12	21	71.52	0 00:35	157.52	0.45	21.22	0.04	2.06	0.69	0.00	
13	22A	0.97	0 00:45	6.55	0.15	3.39	0.12	0.35	0.28	0.00	
14	22B	5.44	0 00:13	13.72	0.40	32.23	0.01	0.26	0.21	0.00	
15	23	73.83	0 00:36	201.69	0.37	15.48	0.04	1.91	0.64	0.00	
16	24	4.78	0 00:41	38.33	0.12	7.13	0.12	0.62	0.32	0.00	
17	25	2.84	0 00:30	18.68	0.15	2.75	0.13	0.77	0.39	0.00	
18	26A										
19	26B										
20	27										
21	28										
22	32										
23	34										
24	35										
25	36A										
26	36B										
27	38A										
28	41										
29	40										
30	38B										
31	7										
32	5										
33	29										
34	37										
35	31										
36	42A										
37	39										
38	42B										
39	4A										
40	3										
41	6B										
42	6A										
43	4B										
44	4C										

Inlet Input

SN	Element ID	Inlet Manufacturer	Manufacturer Part Number	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Ini Wa De
1	1	FHWA HEC-22 GENERIC	N/A	On Grade	2	6325.69	6331.04	5.35	6325.69	0
2	3	FHWA HEC-22 GENERIC	N/A	On Grade	2	6319.88	6323.63	3.75	6319.88	0
3	4A	FHWA HEC-22 GENERIC	N/A	On Sag	1	6316.70	6321.70	5.00	6316.70	0
4	6A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6311.67	6319.80	8.13	6311.67	0
5	8	FHWA HEC-22 GENERIC	N/A	On Grade	1	6307.24	6312.97	5.73	6307.24	0
6	9	FHWA HEC-22 GENERIC	N/A	On Sag	2	6306.19	6312.14	5.95	6306.19	0
7	10	FHWA HEC-22 GENERIC	N/A	On Grade	1	6307.86	6311.61	3.75	6307.86	0
8	11A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6388.43	6392.18	3.75	6388.43	0
9	12	FHWA HEC-22 GENERIC	N/A	On Grade	1	6392.09	6397.09	5.00	6392.09	0
10	13	FHWA HEC-22 GENERIC	N/A	On Grade	1	6367.42	6371.17	3.75	6367.42	0
11	14	FHWA HEC-22 GENERIC	N/A	On Grade	1	6365.95	6371.17	5.22	6365.95	0
12	15	FHWA HEC-22 GENERIC	N/A	On Sag	1	6364.19	6368.38	4.19	6364.19	0
13	16A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6364.07	6368.38	4.31	6364.07	0
14	17	FHWA HEC-22 GENERIC	N/A	On Grade	1	6353.35	6357.10	3.75	6353.35	0
15	18	FHWA HEC-22 GENERIC	N/A	On Grade	2	6351.38	6357.10	5.72	6351.38	0
16	19	FHWA HEC-22 GENERIC	N/A	On Grade	1	6352.04	6355.79	3.75	6352.04	0
17	20A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6351.90	6355.85	3.95	6351.90	0
18	21	FHWA HEC-22 GENERIC	N/A	On Sag	1	6350.40	6354.40	4.00	6350.40	0
19	22A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6349.66	6354.41	4.75	6349.66	0
20	23	FHWA HEC-22 GENERIC	N/A	On Grade	1	6339.33	6343.08	3.75	6339.33	0
21	24	FHWA HEC-22 GENERIC	N/A	On Grade	1	6337.14	6343.08	5.94	6337.14	0
22	25	FHWA HEC-22 GENERIC	N/A	On Sag	1	6336.99	6340.74	3.75	6336.99	0
23	26A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6336.49	6340.75	4.26	6336.49	0
24	27	FHWA HEC-22 GENERIC	N/A	On Grade	1	6324.03	6327.78	3.75	6324.03	0
25	28	FHWA HEC-22 GENERIC	N/A	On Grade	1	6321.26	6326.76	5.50	6321.26	0
26	2	FHWA HEC-22 GENERIC	N/A	On Grade	2	6325.96	6331.21	5.25	6325.96	0
27	30A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6323.67	6327.93	4.26	6323.67	0
28	32	FHWA HEC-22 GENERIC	N/A	On Grade	1	6319.96	6324.69	4.73	6319.96	0
29	33A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6325.56	6329.79	4.23	6325.56	0
30	34	FHWA HEC-22 GENERIC	N/A	On Grade	1	6326.04	6329.79	3.75	6326.04	0
31	35	FHWA HEC-22 GENERIC	N/A	On Sag	1	6318.85	6324.73	5.88	6318.85	0
32	36A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6318.70	6324.73	6.03	6318.70	0
33	38A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6306.20	6312.63	6.43	6306.20	0
34	39	FHWA HEC-22 GENERIC	N/A	On Sag	2	6296.41	6300.41	4.00	6296.41	0
35	41	FHWA HEC-22 GENERIC	N/A	On Sag	2	6295.83	6300.00	4.17	6295.83	0
36	40	FHWA HEC-22 GENERIC	N/A	On Sag	2	6296.25	6300.00	3.75	6296.25	0
37	7	FHWA HEC-22 GENERIC	N/A	On Grade	1	6309.74	6313.49	3.75	6309.74	0
38	5	FHWA HEC-22 GENERIC	N/A	On Grade	1	6315.81	6319.56	3.75	6315.81	0
39	29	FHWA HEC-22 GENERIC	N/A	On Grade	1	6324.16	6327.91	3.75	6324.16	0
40	37	FHWA HEC-22 GENERIC	N/A	On Grade	1	6308.88	6312.63	3.75	6308.88	0
41	31	FHWA HEC-22 GENERIC	N/A	On Sag	2	6320.94	6324.69	3.75	6320.94	0
42	Existing-1A	FHWA HEC-22 GENERIC	N/A	On Grade	1	6370.10	6375.21	5.11	6370.10	0

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	1	0.0350	0.0200	0.0130	0.0620	2.00	0.0000	6.00
2	3	0.0700	0.0200	0.0130	0.0620	2.00	0.0000	6.00
3	4A	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
4	6A	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
5	8	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
6	9	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
7	10	0.0100	0.0200	0.0130	0.0620	2.00	0.0000	6.00
8	11A	0.0100	0.0200	0.0130	0.0620	2.00	0.0000	6.00
9	12	0.0100	0.0200	0.0130	0.0620	2.00	0.0000	6.00
10	13	0.0700	0.0200	0.0130	0.0620	2.00	0.0000	6.00
11	14	0.0700	0.0200	0.0130	0.0620	2.00	0.0000	6.00
12	15	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
13	16A	0.0500	0.0200	0.0130	0.0620	2.00	0.0000	6.00
14	17	0.0700	0.0200	0.0130	0.0620	2.00	0.0000	6.00
15	18	0.0700	0.0200	0.0130	0.0620	2.00	0.0000	6.00
16	19	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
17	20A	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
18	21	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
19	22A	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
20	23	0.0600	0.0200	0.0130	0.0620	2.00	0.0000	6.00
21	24	0.0600	0.0200	0.0130	0.0620	2.00	0.0000	6.00
22	25	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
23	26A	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
24	27	0.0650	0.0200	0.0130	0.0620	2.00	0.0000	6.00
25	28	0.0650	0.0200	0.0130	0.0620	2.00	0.0000	6.00
26	2	0.0350	0.0200	0.0130	0.0620	2.00	0.0000	6.00
27	30A	0.0430	0.0200	0.0130	0.0620	2.00	0.0000	6.00
28	32	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
29	33A	0.0100	0.0200	0.0130	0.0620	2.00	0.0000	6.00
30	34	0.0100	0.0200	0.0130	0.0620	2.00	0.0000	6.00
31	35	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
32	36A	0.0200	0.0200	0.0130	0.0620	2.00	0.0000	6.00
33	38A	0.0500	0.0200	0.0130	0.0620	2.00	0.0000	6.00
34	39	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
35	41	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
36	40	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
37	7	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
38	5	0.0050	0.0200	0.0130	0.0620	2.00	0.0000	6.00
39	29	0.0430	0.0200	0.0130	0.0620	2.00	0.0000	6.00
40	37	0.0500	0.0200	0.0130	0.0620	2.00	0.0000	6.00
41	31	N/A	0.0200	0.0130	0.0620	2.00	0.0000	6.00
42	Existing-1A	0.0700	0.0200	0.0130	0.0620	2.00	0.0000	6.00

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time of Max Depth Occurrence (days hh:mm)	Flo Vol (a
1	1	0.63	0.63	0.01	0.62	1.59	2.20	6331.08	0.04	0 00:30	
2	3	0.44	0.44	0.44	0.00	100.00	1.68	6323.73	0.10	0 00:35	
3	4A	1.45	1.31	0.99	0.46	68.16	7.90	6313.21	0.24	0 00:32	
4	6A	1.52	1.12	N/A	N/A	N/A	7.58	6312.31	0.17	0 00:32	
5	8	1.00	0.82	0.83	0.17	83.12	5.50	6311.80	0.19	0 00:35	
6	9	15.59	15.59	4.99	10.59	32.03	18.33	6397.54	0.45	0 00:30	
7	10	0.44	0.41	0.44	0.01	98.62	1.68	6371.27	0.10	0 00:25	
8	11A	10.71	0.39	3.55	7.15	33.19	10.61	6371.47	0.30	0 00:30	
9	12	1.09	1.07	N/A	N/A	N/A	7.06	6368.54	0.16	0 00:33	
10	13	0.95	0.95	0.00	0.95	0.21	2.39	6368.43	0.05	0 00:33	
11	14	0.33	0.32	0.33	0.00	100.00	1.50	6357.19	0.09	0 00:27	
12	15	7.19	0.49	4.72	2.47	65.66	8.95	6357.36	0.26	0 00:31	
13	16A	0.92	0.92	0.72	0.20	78.23	6.32	6356.00	0.21	0 00:40	
14	17	1.44	1.23	N/A	N/A	N/A	8.74	6354.60	0.20	0 00:45	
15	18	0.43	0.27	0.43	0.00	100.00	1.71	6343.19	0.11	0 00:35	
16	19	2.79	0.39	1.90	0.89	68.13	5.93	6343.28	0.20	0 00:35	
17	20A	0.97	0.97	N/A	N/A	N/A	6.44	6340.89	0.15	0 00:45	
18	21	0.54	0.54	0.48	0.06	89.42	4.71	6340.93	0.18	0 00:40	
19	22A	0.69	0.65	0.00	0.69	0.21	2.03	6327.82	0.04	0 00:25	
20	23	0.86	0.68	0.00	0.86	0.19	2.19	6326.80	0.04	0 00:36	
21	24	1.15	1.12	0.84	0.31	73.37	7.05	6324.92	0.23	0 00:41	
22	25	2.33	2.33	1.49	0.83	64.17	8.35	6330.04	0.25	0 00:35	
23	26A	0.76	0.61	N/A	N/A	N/A	5.29	6324.86	0.13	0 00:31	
24	27	1.61	0.77	1.28	0.33	79.52	5.92	6324.93	0.20	0 00:34	
25	28	0.46	0.39	0.46	0.00	100.00	1.81	6312.74	0.11	0 00:36	
26	2										
27	30A										
28	32										
29	33A										
30	34										
31	35										
32	36A										
33	38A										
34	39										
35	41										
36	40										
37	7										
38	5										
39	29										
40	37										
41	31										
42	Existing-1A										

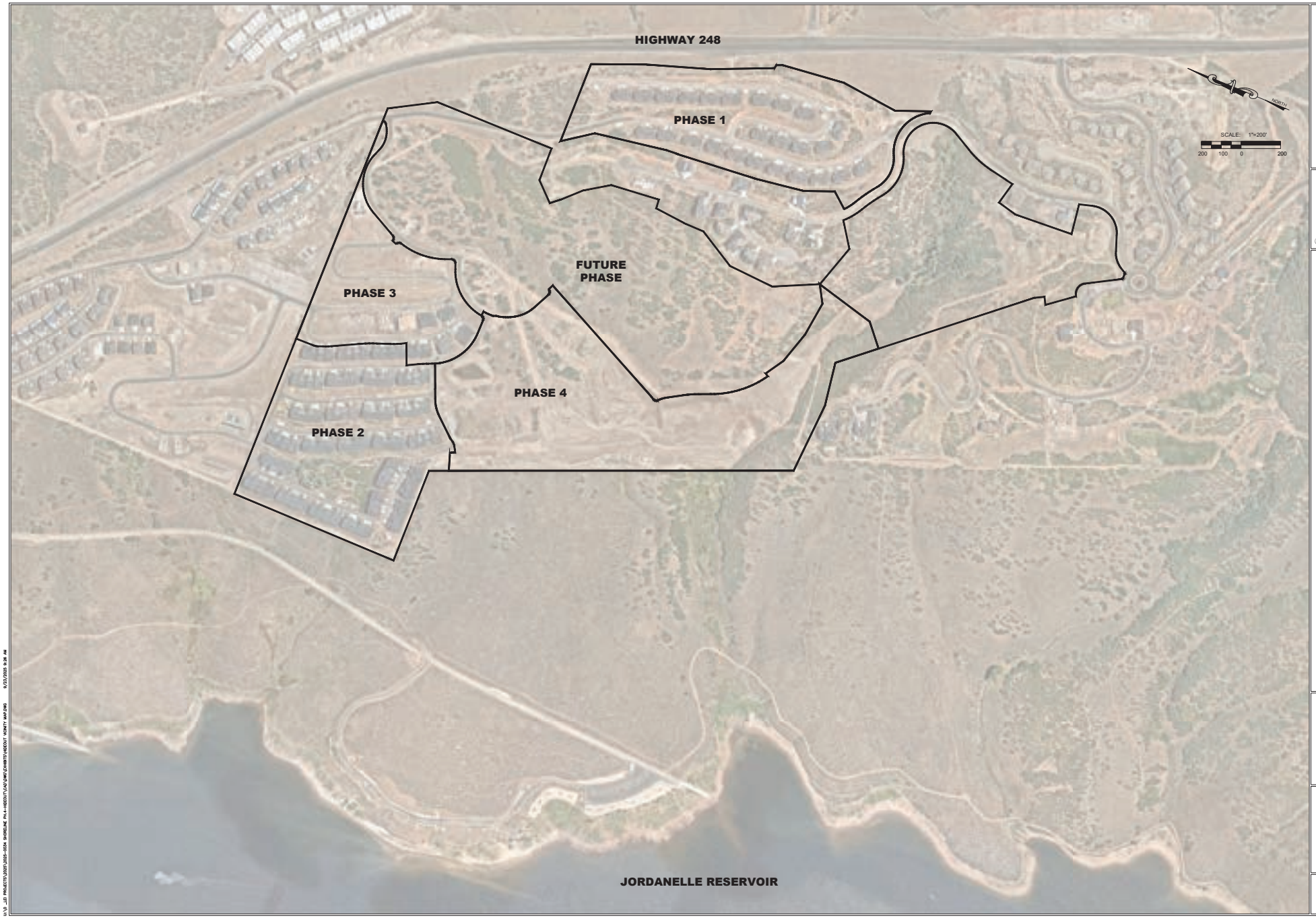
Appendix K: SSA Model Inputs

Subbasin	Area (ac)	CN VALUE	Land Use	Time of Concentration
1	0.33	90.00	Downhill lots	22
2	1.49	86.50	Uphill lots	35
3	0.23	90.00	Downhill lots	22
4	0.60	86.50	Uphill lots	35
5	0.26	90.00	Downhill lots	22
6	0.64	86.50	Uphill lots	35
7	0.44	90.00	Downhill lots	22
8	1.11	86.50	Uphill lots	35
9	0.95	86.50	Uphill lots	35
10	0.43	90.00	Downhill lots	22
11	0.14	98.00	Roadway	15
12	0.13	98.00	Roadway	15
13	0.11	98.00	Roadway	15
14	0.10	98.00	Roadway	15
15	0.28	98.00	Roadway	15
16	0.50	90.00	Downhill lots	22
17	0.08	98.00	Roadway	15
18	0.13	98.00	Roadway	15
19	0.78	86.50	Uphill lots	35
20	0.39	90.00	Downhill lots	22
21	1.04	86.50	Uphill lots	35
22	0.46	90.00	Downhill lots	22
23	0.07	98.00	Roadway	15
24	0.10	98.00	Roadway	15
25	0.82	86.50	Uphill lots	35
26	0.28	90.00	Downhill lots	22
27	0.17	98.00	Roadway	15
28	0.18	98.00	Roadway	15
29	1.55	86.50	Uphill lots	35
30	0.45	90.00	Downhill lots	22
31	1.38	86.50	Uphill lots	35
32	0.59	90.00	Downhill lots	22
33	0.24	98.00	Roadway	15
34	1.22	90.00	Downhill lots	22
35	0.16	98.00	Roadway	15
36	0.40	90.00	Downhill lots	22
37	0.10	98.00	Roadway	15
38	0.10	98.00	Roadway	15
39	0.50	90.00	Downhill lots	22
40	1.28	86.50	Uphill lots	35
41	0.05	86.50	Uphill lots	35

OFFSITE FLOWS (FROM OTHERS)		
AREA NAME	10-Year	100-Year
PH. 1	8.69	17.14
PH. 3	8.3	16.4
TOTAL ADDED FLOW	16.99	33.54

OFFSITE FLOWS (FUTURE)			
AREA NAME	AREA	CN	TOC (Assumed)
1	1.75	90.00	25
2	7.99	91.00	40
3	12.63	87.00	40
4	11.09	90.00	40

Appendix L: Vicinity Map



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NOT FOR CONSTRUCTION

SHORELINE
HIDEOUT, UTAH

VICINITY MAP

REVISIONS
1 -
2 -
3 -
4 -
5 -

LEI PROJECT #: 2025-0034
DRAWN BY: SKS
DESIGNED BY: GDM
SCALE: 1"=200'
DATE: 09/23/2025
SHEET 1

U:\0_LEI PROJECTS\2025\2025-0034 SHORELINE PH-4-HIDEOUT\CAD\DWG\EXHIBITS\HIDEOUT VICINITY MAP.DWG 9/23/2025 9:26 AM

Appendix M: FEMA Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures in this jurisdiction.

The **projection** used in the preparation of this map is State Plane Utah Central 4302. The **horizontal datum** was NAD 83, GRS 1980, spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS 12
National Geodetic Society
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242
(301) 713-4172 (fax)

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit their website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the U.S. Farm Service National Agriculture Imagery Program (NAIP), dated summer 2006, and by the U.S. Geological Survey Digital Orthophoto Quadrangles, dated 1993 and later, produced at a scale of 1:24000. The data was obtained from the United States Department of Agriculture (USDA).

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report may reflect stream channel distances that differ from what is shown on this map.

The "**profile base lines**" depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the "profile base line", in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

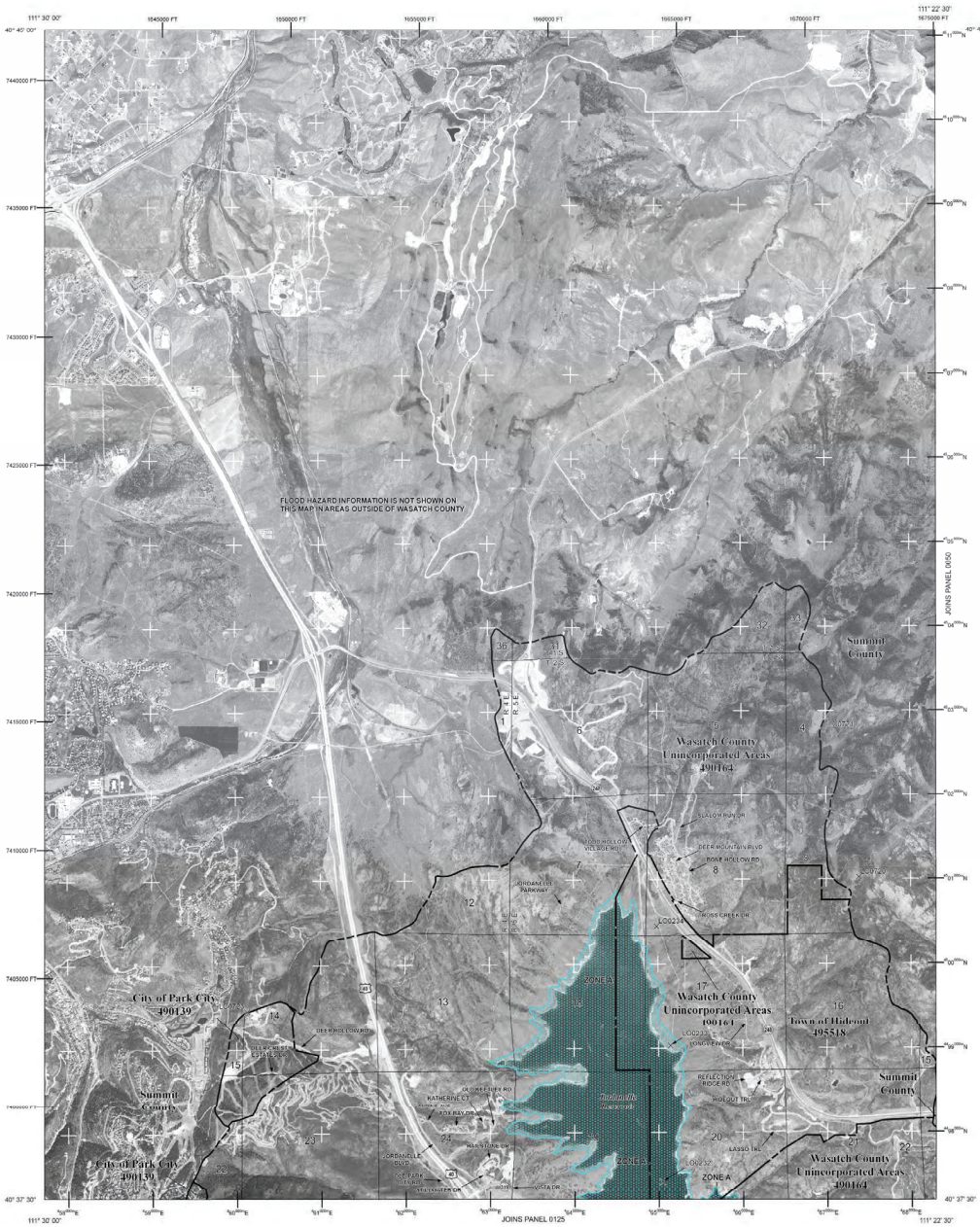
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Information eXchange (FMIX)** at 1-877-336-2627 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FMIX may also be reached by Fax at 1-800-358-9620 and its website at http://www.msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/.

STATE OF UTAH FIRM PANEL LOCATOR DIAGRAM

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard

Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAS)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

(A)————(A)	Cross section line
(23)----------(23)	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
$^{42}76^{000m}$E	1000-meter Universal Transverse Mercator grid values, Zone 12
600000 FT	5000-foot grid ticks: Utah State Plane Coordinate System, Central Zone (FIPSZONE 4302), Lambert Conformal Conic Projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
◆ M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP

March 15, 2012

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

600 0 600 1200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0025E

FIRM
FLOOD INSURANCE RATE MAP

WASATCH COUNTY, UTAH
AND INCORPORATED AREAS

PANEL 25 OF 775

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HIDEOUT, TOWN OF	495518	0025	E
PARK CITY, CITY OF	490139	0025	E
WASATCH COUNTY	490164	0025	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
49051C0025E

EFFECTIVE DATE
MARCH 15, 2012

Federal Emergency Management Agency

National Flood Hazard Layer FIRMette

FEMA

111°24'36"W 40°38'52"N

111°23'59"W 40°38'24"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

Item # 3.

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR [illegible] UT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/29/2025 at 3:04 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Appendix N: Civil Plans

Appendix O: Dead Man's Gulch Calculations

Proposed Pipe Flow:	109.00	*cfs*
Head:	9.00	*ft*
Required Pipe Diameter:	***29.10***	***in***
Pipe Diameter:	**36.00**	***in***
Pipe Flow W/ Proposed Head:	166.77	cfs

Notes:
Orifice Head does not include the freeboard of the headwall. If freeboard was included, the orifice head would be 10'.

Orifices and their Nominal Coefficients

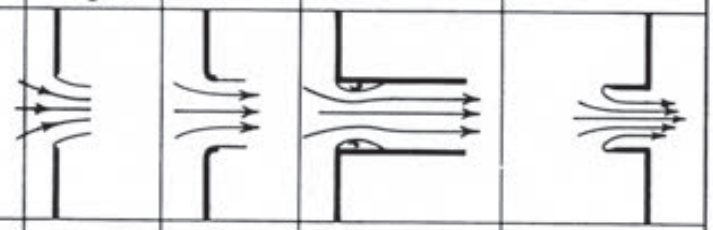
	Sharp edged	Rounded	Short tube	Borda
				
C	0.61	0.98	0.80	0.51
C_c	0.62	1.00	1.00	0.52
C_v	0.98	0.98	0.80	0.98

Fig. **11.35**

Pipe Area	1017	sq in

Trash Rack Dimensions		
Top W	10	ft
Bottom W	15	ft
Length	5	ft

Area	63	sf
Area	9000	sq in

Assume 4" spacing of 0.5" material which allows 3.5" of opening. That means the opening would be 44% of the Trash Rack Area, this takes into account the bars and the 50% blockage.

Blockage	44	%
Usable Area	3960	sq in

Factor of Safety	3	
Usable Area	1320	sq in
Required Area	1017	sq in

BASIS OF DESIGN

1. GOVERNING BUILDING CODE ..... 2021 IBC

2. SEISMIC DESIGN:
   SEISMIC DESIGN CATEGORY C
   I I.0
   S_s=0.527 S_1=0.187 S_{DS}=0.351 S_{D1}=0.125
   SITE CLASS (PER GEOTECH) C
   RISK CATEGORY II

3. SOILS:
   SOIL BEARING PRESSURE (IGES PROJ. NO. 00733-22 DATED JULY 7, 2020)..... 2400 PSF

GENERAL

1. THE GENERAL CONTRACTOR SHALL:
   A. BECOME FAMILIAR WITH ALL PORTIONS OF THE CONTRACT DOCUMENTS AND INSURE THAT ALL SUBCONTRACTORS ARE FAMILIAR WITH THOSE PORTIONS PERTAINING TO THEIR AREA OF WORK. NO DEVIATIONS WILL BE ALLOWED UNLESS AGREED UPON BY ALL PARTIES IN WRITING PRIOR TO CONSTRUCTION OR FABRICATION.
   B. VERIFY ALL DIMENSIONS AND ELEVATIONS. COORDINATE ALL DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, ELEVATIONS, SLOPES, STAIRS, CURBS, DRAINS, RECESSES, DEPRESSIONS, RAILINGS, WATER PROOFING, FINISHES, CHAMFERS, KERFS, ETC.
   C. FIELD VERIFY ALL SITE CONDITIONS AND IMMEDIATELY NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER REGARDING ACTUAL CONDITIONS AT THE SITE WHICH ARE NOT PER THE DRAWINGS.
   D. COORDINATE ALL WORK BETWEEN THE VARIOUS TRADES AND SUBCONTRACTORS. REPORT ANY MODIFICATIONS TO THE STRUCTURAL PORTION OF THE BUILDING BY OTHER TRADES TO THE ARCHITECT AND STRUCTURAL ENGINEER.
   E. BE RESPONSIBLE FOR SAFETY AND PROTECTION IN AND AROUND THE JOB SITE AND.OR ADJACENT PROPERTIES.

2. CONTRACT DOCUMENTS:
   A. REFER TO THE SPECIFICATIONS FOR INFORMATION NOT COVERED BY THESE GENERAL NOTES OR THE DRAWINGS.
   B. DETAILS, SECTIONS AND NOTES SHOWN ON THE STRUCTURAL DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO ALL SIMILAR SITUATIONS ELSEWHERE, UNLESS NOTED OR SHOWN OTHERWISE.
   C. THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE OVER SHOP DRAWINGS UNLESS SPECIFICALLY NOTES OTHERWISE.
   D. INFORMATION ON DRAWINGS INDICATING EXISTING CONDITIONS IS BASED ON BEST PRESENT KNOWLEDGE, BUT MAY NOT BE ENTIRELY ACCURATE AND MUST BE FIELD VERIFIED.

3. BUILDING CODE COMPLIANCE:
   A. INSPECTION, TESTING, CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE GOVERNING BUILDING CODE AND STANDARDS. ASTM AND IBC DESIGNATIONS SHALL BE AS AMENDED TO LATEST DATE UNLESS NOTED OTHERWISE.

4. COORDINATION:
   A. COORDINATE AND VERIFY ROOF, FLOOR, AND WALL OPENINGS REQUIRED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND/OR OTHER DRAWINGS PRIOR TO CONSTRUCTION. REPORT OPENINGS REQUIRED WHICH ARE NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW.
   B. COORDINATE ANY CONSTRUCTION SITUATION NOT COVERED BY THESE PLANS, GENERAL NOTES, OR SPECIFICATIONS WITH THE ARCHITECT AND STRUCTURAL ENGINEER.

5. CONSTRUCTION SEQUENCE, SHORING, AND BRACING REQUIREMENTS:
   A. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE METHOD, MEANS AND SEQUENCE OF ALL STRUCTURAL ERECTION EXCEPT WHEN TEMPORARY SHORING AND BRACING AS HIS METHOD OF ERECTION REQUIRES TO PROVIDE ADEQUATE VERTICAL AND LATERAL SUPPORT DURING ERECTION. THIS SHORING AND BRACING SHALL REMAIN IN PLACE UNTIL ALL PERMANENT MEMBERS ARE PLACE AND ALL FINAL CONNECTIONS ARE COMPLETED, INCLUDING ALL ROOF AND FLOOR ATTACHMENTS.
   B. SHORING AND SUPPORTING FORM WORK FOR SUSPENDED CONCRETE OR MASONRY MATERIAL SHALL REMAIN IN PLACE AND SHALL NOT BE REMOVED UNTIL THE STRUCTURAL MEMBERS HAVE ACQUIRED SUFFICIENT STRENGTH TO SAFELY SUPPORT THEIR OWN WEIGHT AND ANY ADDITIONAL CONSTRUCTION, STORAGE, AND/OR OTHER LOADS TO WHICH THEY MAY BE SUBJECTED. IN NO CASE SHALL THEY BE REMOVED PRIOR TO 7 DAYS. RE-SHORING SHALL BE IMMEDIATELY INSTALLED UPON REMOVAL OF SUCH FORMS AND SHALL REMAIN IN PLACE UNTIL 28 DAYS AFTER PLACING OF MATERIAL OR UNTIL MATERIAL HAS REACHED ITS 28 DAY DESIGN STRENGTH, WHICHEVER IS LONGER. DO NOT REMOVE LARGE AREAS OF SHORING BEFORE STARTING RE-SHORING PROCEDURES.
   C. NON-BEARING INTERIOR WALLS SHALL BE ADEQUATELY BRACED TO THE STRUCTURE ABOVE WITH ALLOWANCE FOR DEFLECTION OF THE STRUCTURE ABOVE AND/OR BELOW.
   D. BUILDING WALLS WHICH RETAIN EARTH MUST BE BRACED AT THE TOP. DO NOT BACKFILL UNESS BRACING IS PROVIDED OR UNTIL THE COMPLETE FLOOR OR ROOF SYSTEM IS IN PLACE, TYPICAL, UNLESS NOTED OTHERWISE.

6. OMISSIONS AND/OR CONFLICTS:
   A. OMISSIONS IN AND/OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER AND SHALL BE RESOLVED BY THE SAME BEFORE PROCEEDING WITH ANY WORK INVOLVED.
   B. IN CASE OF CONFLICTS IN THE STRUCTURAL WORK, THE MOST STRINGENT REQUIREMENTS, AS DIRECTED BY THE ARCHITECT AND STRUCTURAL ENGINEER, SHALL BE IMPLEMENTED AT NO ADDITIONAL COST TO THE OWNER.

7. MISCELLANEOUS:
   A. DURING AND AFTER CONSTRUCTION, THE CONTRACTOR AND/OR OWNER SHALL KEEP THE LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN.
   B. OBSERVATION VISITS TO THE SITE BY REPRESENTATIVES OF THE ARCHITECT AND/OR STRUCTURAL ENGINEER SHALL NOT BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.

8. SUBMITTALS:
   A. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION, ERECTION, INSTALLATION, OR OTHERWISE BEING INCORPORATED INTO THE WORK.
      REINFORCING STEEL SHOP DRAWINGS.
      STRUCTURAL STEEL SHOP DRAWINGS.

* THESE SUBMITTALS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF UTAH.
   B. A MINIMUM OF TWO WEEKS SHALL BE ALLOWED FOR THE REVIEW OF ALL SUBMITTALS BY THE ARCHITECT AND STRUCTURAL ENGINEER.
   C. REQUESTS FOR SUBSTITUTIONS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER IN WRITING. REASON(S) FOR THE REQUEST AND COST DIFFERENTIALS SHALL BE INCLUDED IN THE REQURESTS, SUBSTITUTIONS ARE NOT ALLOWED UNLESS APPROVED IN WRITING BY THE ARCHITECT AND STRUCTURAL ENGINEER.

SITE PREPARATION

1. REQUIREMENTS
   A. DO NOT PLACE FOOTINGS OR FOUNDATIONS ON DISTURBED SOILS, UNDOCUMENTED FILL, DEBRIS, FROZEN SOIL, OR IN PONDED WATER.
   B. ALL UNSUITABLE SOILS AND VEGETATION, SUCH AS TOPSOIL, ORGANIC SOILS, UNDOCUMENTED FILL, DISTURBED NATIVE SOILS, AND OTHER DELETERIOUS MATERIALS, SHALL BE REMOVED FROM BELOW FOOTINGS, FOUNDATIONS, AND FLOOR SLABS.
   C. CONTRACTOR SHALL VERIFY SOIL BEARING CAPACITY AND ALL SITE PREPARATION REQUIREMENTS WITH GEOTECHNICAL REPORT. IN THE ABSENCE OF A GEOTECHNICAL REPORT INDUSTRY STANDARDS SHALL BE FOLLOWED FOR BEARING AND COMPACTION.

CONCRETE

1. CODES AND STANDARDS:
   A. CONCRETE WORK SHALL COMPLY WITH THE AMERICAN CONCRETE INSTITUTE (ACI) EDITIONS OF:
      I. ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
      II. ACI 318, "BUILDING CODE REQUIREMENTS REQUIRED FOR REINFORCED CONCRETE".
      III. ACI 347, "RECOMMENDED PRACTIVE FOR CONCRETE FORM WORK".

2. MATERIALS:
   A. CEMENT SHALL CONFORM TO ASTM C150, TYPE II, PORTLAND CEMENT
   B. HARD ROCK AGGREGATES SHALL CONFORM TO ASTM C33. LIGHTWEIGHT AGGREGATES SHALL CONFORM TO ASTM C330.
   C. WATER SHALL BE POTABLE.
   D. AIR ENTRAINMENT SHALL CONFORM TO ASTM C260.
   E. FLY ASH SHALL CONFORM TO ASTM C618.
   F. CALCIUM CHLORIDE SHALL NOT BE USED.

3. MIX DESIGNS
   A. ONLY ONE TYPE OF CONCRETE SHALL BE PLACED AT THE SITE AT ANY GIVEN TIME.
   B. A MIX DESIGN THAT PRODUCES THE LOWEST SLUMP COMPATIBLE WITH PROPER PLACEMENT SHALL BE USED, 4" MAXIMUM.
   C. CONCRETE MIXES SHALL CONFORM TO THE FOLLOWING:

TYPE OF CONCRETE MEMBER	MINIMUM STRENGTH AT 28 DAYS (PSI)	MAX. W/C (RATIO)	DRY WEIGHT (PCF)	MAX AGGREGATE SIZE (INCHES)	AIR ENTRAIN-MENT (%)	MIN. CEMENT PER YARD (LBS)
FOOTINGS:	4000	0.50	145	0'-0 3/4"	3 ±-1	517
FOUNDATION WALLS:	4500	0.45	145	0'-0 3/4"	3 ±-1	564
SLAB ON GRADE:						
EXTERIOR	4500	0.45	145	0'-0 3/4"	6 ±-1	564

   D. LIMIT FLY ASH TO 15% OF THE TOTAL CEMENTITIOUS MATERIAL.
   E. PEA GRAVEL AGGREGATE AND/OR PLASTICIZER MAY BE USED IN CONGESTED AREAS WHEN REQUIRED TO PROPERLY FILL ALL VOIDS AND/OR FOR WORKABILITY. (CONTRACTOR'S OPINION)

4. CONSTRUCTION:
   A. CONCRETE SHALL BE PROPERLY VIBRATED DURING PLACEMENT.
   B. PRIOR TO PLACING CONCRETE CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF OPENINGS, BLOCKOUTS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, EMBEDS, DOWELS, ECT. ANCHOR BOLTS AND DOWELS SHALL BE PLACED PRIOR TO CASTING CONCRETE.
   C. CONSTRUCTION JOINTS AND BULKHEADS SHALL BE FORMED WITH A KEY WAY. ALL CONTACT SURFACES, NEW OR EXISTING, AT CONSTRUCTION JOINTS SHALL BE INTENTIONALLY ROUGHENED PRIOR TO CASTING ADJACENT POUR.
   D. OPENINGS IN FLOORS AND/OR WALLS SHALL HAVE ADDITIONAL REINFORCING AROUND ALL SIDES OF THE OPENING EQUIVALENT TO THE BARS CUT BY THE OPENING WITH HALF ON EACH SIDE OF THE OPENING WITH HALF ON EACH SIDE OF THE OPENING OR 2-#5 BARS, WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE. BARS PARALLEL TO THE PRINCIPAL REINFORCING SHALL RUN FULL LENGTH OF THE SPAN. BARS IN THE OTHER DIRECTION SHALL RUN 24 INCHES BEYOND THE EDGE OF THE OPENING OR END WITH A STANDARD HOOK. ALSO PROVIDE 2-#5x4'-0" DIAGONAL BARS AT EACH CORNER OF EACH OPENING.
   E. NO PENETRATION SHALL BE ALLOWED THROUGH ANY CONCRETE BEAM, JOIST, COLUMN, PIER, OR JAMB WITHOUT THE ARCHITECT'S AND STRUCTURAL ENGINEER'S PRIOR WRITTEN APPROVAL. PENETRATIONS SHALL BE RE-ROUTED AS REQUIRED AT THESE LOCATIONS.

5. FOOTINGS:
   A. FOOTINGS SHALL BEAR ON PROPERLY PREPARED MATERIAL. SEE THE SITE PREPARATION NOTES.
   B. FOOTINGS SHALL BE CENTERED BELOW THE WALL AND/OR COLUMN ABOVE, TYPICAL UNLESS NOTED OTHERWISE.
   C. EXTERIOR FOOTINGS SHALL BEAR BELOW THE EFFECTS OF FROST.
   D. PROVIDE 2x4 BEVELED KEY WAYS IN ALL CONTINUOUS WALL FOOTINGS.
   E. STAGGER FOOTING CONSTRUCTION JOINTS FROM WALL CONSTRUCTION JOINTS ABOVE BY AT LEAST 6 FEET.
   F. REINFORCING IN CONTINUOUS FOOTINGS SHALL BE CONTINUOUS AT CORNERS AND/OR INTERSECTIONS BY PROVIDING PROPER LAP LENGTHS AND/OR CORNER BARS.
   G. NO PENETRATIONS SHALL BE ALLOW THROUGH ANY CONCRETE FOOTING. WHEN CONFLICTS ARISE BETWEEN UNDERGROUND PLUMBING, UTILITIES, ETC., THE FOOTING SHALL BE STEPPED DOWN BELOW THE CONFLICT AND A CONCRETE WALL, PIER, COLUMN, ETC., SHALL BE EXTENDED TO THE FOOTING AS REQUIRED.
   H. BEARING SURFACES FOR FOOTINGS WHICH ARE, OR BECOME, UNDERMINED DURING CONSTRUCTION SHALL BE BACK FILLED WITH A LEAN-MIX CONCRETE (1000 PSI MIN).

6. SLABS ON GRADE:
   A. INTERIOR SLABS ON GRADE SHALL BE A MINIMUM OF 4 INCHES THICK, SHALL BEAR ON A 4 INCH MINIMUM LAYER OF FREE-DRAINING GRAVEL, AND SHALL BE REINFORCED WITH #4 BARS AT 24" O.C. BOTH WAYS, TYPICAL UNLESS NOTED OTHERWISE. PROVIDE CHAIRS WITH SAND PLATES FOR PROPER PLACEMENT.
   B. LARGE AREAS OF INTERIOR SLABS ON GRADE SHALL BE PLACED IN STRIPS NOT TO EXCEED 120 FEET IN LENGTH NOR 30 FEET IN WIDTH WHICH ARE SUBDIVIDED BY CONSTRUCTION AND/OR CONTRACTION (CONTROL) JOINTS INTO ROUGHLY SQUARES WHO SIDES SHALL NOT EXCEED 15 FEET IN EITHER DIRECTION.
   C. SEE ARCHITECTURAL FOR EXTERIOR SLABS ON GRADE, TYPICAL, UNLESS NOTED OTHERWISE.

REINFORCING STEEL

1. CODES AND STANDARDS: REINFORCING STEEL SHALL COMPLY WITH :
   I. AMERICAN CONCRETE INSTITUTE BUILDING CODE & COMMENTARY ACI 318.
   II. AMERICAN CONCRETE INSTITUTE "DETAILING MANUAL", ACI 315 (OR SP-66).
2. MATERIALS:
   A. REINFORCING STEEL SHALL BE NEW STOCK DEFORMED BARS AND SHALL CONFORM TO ASTM A615, GRADE 60, WITH A DESIGN YIELD STRENGTH OF 60,000 PSI EXCEPT AS NOTED BELOW.
      I.DOWELS TO BE BENT IN THE FIELD DURING CONSTRUCTION SHALL BE ASTM A615, GRADE 40 OR ASTM A706, GRADE 60, "LOW ALLOW STEEL".
      II.REINFORCING TO BE WELDED SHALL BE ASTM A706, GRADE 60, "LOW ALLOY STEEL"
   B. MASONRY JOINT REINFORCING SHALL BE MANUFACTURED FROM WIRE WHICH CONFORMS TO ASTM A82.
3. CONSTRUCTION:
   A. REINFORCING SHALL BE DETAILED, BOLSTERED, AND SUPPORTED PER ACI315.
   B. REINFORCING STEEL SHALL BE FREE OF LOOSE, FLAKY RUST, SCALE, GREASE, OIL, DIRT, AND OTHER MATERIALS WHICH MIGHT AFFECT OR IMPAIR BOND.
   C. REINFORCING SHALL BE CONTINUOUS IN WALLS, BEAMS, COLUMNS, SLABS, FOOTINGS, ETC.
   D. SPLICES IN CONTINUOUS REINFORCING SHALL BE MADE IN AREAS OF COMPRESSION AND/OR AT POINTS OF MINIMUM STRESS, TYPICAL UNLESS NOTED OTHERWISE. LAP SPLICES SHALL BE 40 BAR DIAMETERS LONG IN CONCRETE AND 48 BAR DIAMETERS LONG IN MASONRY. MINIMUM LAP SHALL BE 24 INCHES LONG. DOWELS SHALL HAVE A MINIMUM OF 30 BAR DIAMETERS EMBEDMENT. TENSION SPLICES SHALL BE USED IN CONCRETE WHEN SPECIFICALLY NOTED, USE A CLASS B SPLICE. SPLICES IN TOP BARS IN SUSPENDED SLABS AND BEAMS SHALL BE MADE AT MID SPAN. SPLICES IN BOTTOM BARS IN SUSPENDED SLABS AND BEAMS SHALL BE MADE AT SUPPORTS.
   E. BENDS SHALL BE MADE COLD. DO NOT USE HEAT. BENDS SHALL BE DONE IN THE FABRICATOR'S SHOP UNLESS SPECIFICALLY NOTED FOR THE FIELD. DO NOT UN-BEND OR RE-BEND A PREVIOUSLY BENT BAR.
   F. REINFORCING STEEL IN CONCRETE SHALL BE SECURELY ANCHORED AND TIED IN PLACE PRIOR TO PLACING CONCRETE AND SHALL BE POSITIONED WITH THE FOLLOWING MINIMUM CONCRETE COVER:
      CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.....3"
      CONCRETE EXPOSED TO EARTH OR WEATHER:
         #6 AND LARGER ..... 2"
         #5 AND SMALLER ..... 1½"
      CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
         SLABS AND WALLS, #11 AND SMALLER ..... ¾"
         BEAMS AND COLUMNS, MAIN REINFORCING OR TIES ..... 1½"
         SLAB ON GRADE ..... CENTER OF SLAB
   G. REINFORCING STEEL IN MASONRY SHALL BE PLACED PRIOR TO GROUTING AND SHALL BE PLACED, POSITIONED, AND LOCATED ACCORDING TO THE STRUCTURAL DRAWINGS. IT SHALL BE SECURED AGAINST DISPLACEMENT AT INTERVALS NOT TO EXCEED 200 BAR DIAMETERS OR 10 FEET.
   H. NO REINFORCING STEEL SHALL BE WELDED UNLESS SPECIFICALLY NOTED AS SUCH. USE E90XX ELECTRODES AND ASTM A706 REINFORCING. COMPLY WITH AWS REQUIREMENTS.
   I. EPOXY COATED REINFORCING BARS SHALL BE USED WHEN SPECIFICALLY NOTED. INCREASE LAP SPLICE LENGTHS AS REQUIRED BY THE IBC.

DEFERRED SUBMITTALS

THE CONTRACTOR SHALL SUBMIT THE FOLLOWING DOCUMENTS TO THE ARCHITECT/ENGINEER FOR APPROVAL. THE DOCUMENTS MAY BE SUBMITTED AFTER A PERMIT IS ISSUED IF ALLOWED BY THE GOVERNING JURISDICTION. THE DOCUMENTS SHALL BE SUBMITTED, REVIEWED, & RECEIVED BACK PRIOR TO CONSTRUCTION OR FABRICATION.

1. SEE NOTE ON FRAMING PLAN.

SPECIAL INSPECTIONS

1. THE PROJECT OWNER SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED BELOW. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THESE INSPECTIONS ARE IN ADDITION TO THE INSPECTIONS REQUIRED BY THE BUILDING DEPARTMENT OF THE LOCAL JURISDICTION.

2. SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS DONE IN CONFORMANCE WITH APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTION SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON BY THE PERMIT APPLICANT AND THE BUILDING OFFICIAL PRIOR TO THE START OF WORK.

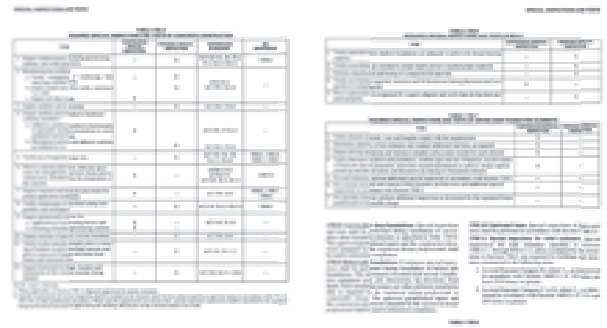
3. WHERE FABRICATION OF STRUCTURAL LOAD BEARING MEMBERS AND ASSEMBLIES IS BEING PERFORMED ON THE PREMISES OF A FABRICATORS SHOP, SPECIAL INSPECTIONS REQUIRED BELOW SHALL BE PROVIDED IN THE SHOP DURING THE FABRICATION PROCESS. THIS REQUIREMENT MAY BE EXCEPTED IF THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. A CERTIFICATE SHALL BE REQUIRED TO VERIFY SUCH APPROVAL. AT COMPLETION OF THE FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS

4. CONTINUOUS SPECIAL INSPECTION IS REQUIRED DURING FIELD GLUING OPERATIONS OF ELEMENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR NAILING, BOLTING, ANCHORING, AND OTHER FASTENING OF COMPONENTS WITHIN THE MAIN WINDFORCE-RESISTING SYSTEM, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, AND HOLD-DOWNS

EXCEPTION: SPECIAL INSPECTION IS NOT REQUIRED FOR WOOD SHEAR WALLS, SHEAR PANELS, AND DIAPHRAGMS, INCLUDING NAILING, BOLTING, ANCHORING, AND OTHER FASTENING TO OTHER COMPONENTS OF THE MAIN WINDFORCE-RESISTING SYSTEM, WHERE THE FASTENER SPACING OF THE SHEATHING IS MORE THAN 4 INCHES (102 mm) ON CENTER.

REQUIRED SPECIAL INSPECTIONS:

1. CONCRETE PER SCHEDULE.



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GCD SHORELINE SITE RETAINING

PHASE 4 SHORELINE SUBDIVISION, HIDEOUT, UTAH

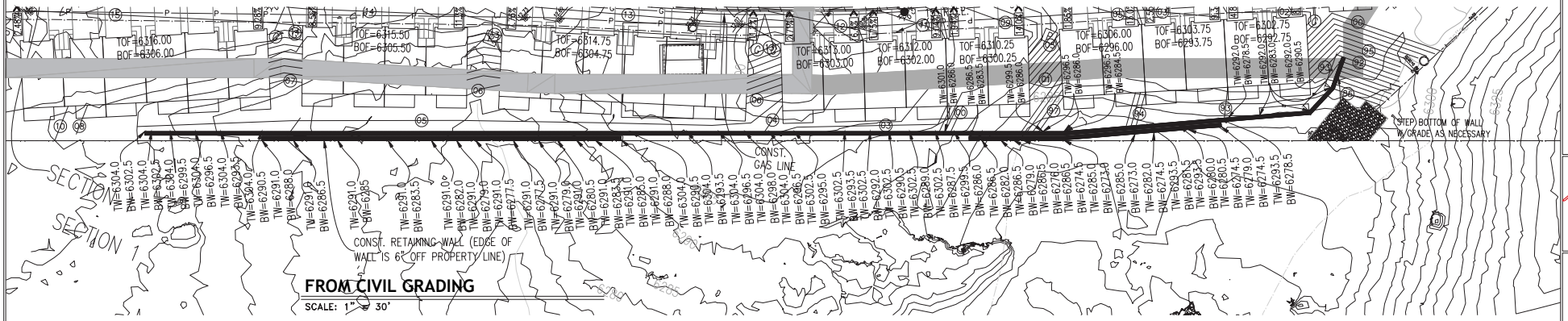
GENERAL STRUCTURAL NOTES

DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR CONVENIENCE ONLY. VERIFY ALL DIMENSIONS WITH THE CURRENT ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

REVISIONS

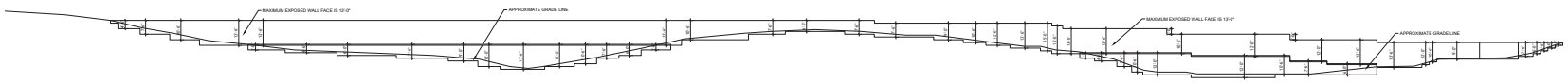
	DESCRIPTION	DATE	BY
1			
2	-	-	-
3	-	-	-
4	-	-	-
5	-	-	-

LEI PROJECT #: 2025-2318
DRAWN BY: JKSA
CHECKED BY: JKSA
SCALE: AS NOTED
DATE: 9/29/2025
SHEET
SR0



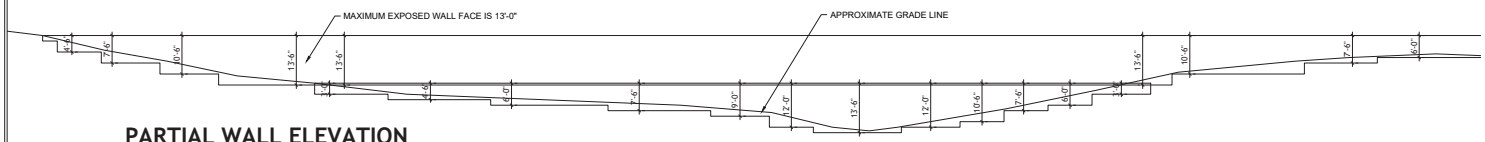
FROM CIVIL GRADING

SCALE: 1" = 30'



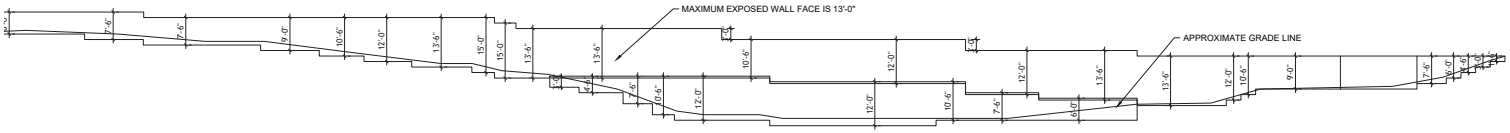
OVERALL WALL ELEVATION

SCALE: 1" = 30'



PARTIAL WALL ELEVATION

SCALE: 1/16" = 1'-0"



PARTIAL WALL ELEVATION

SCALE: 1/16" = 1'-0"

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OVERALL PLAN VIEW AND ELEVATION

DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR CONVENIENCE ONLY. VERIFY ALL DIMENSIONS WITH THE CURRENT ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

REVISIONS

	DESCRIPTION	DATE	BY
1			
2	-	-	-
3	-	-	-
4	-	-	-
5	-	-	-

LEI PROJECT #: 2025-2318

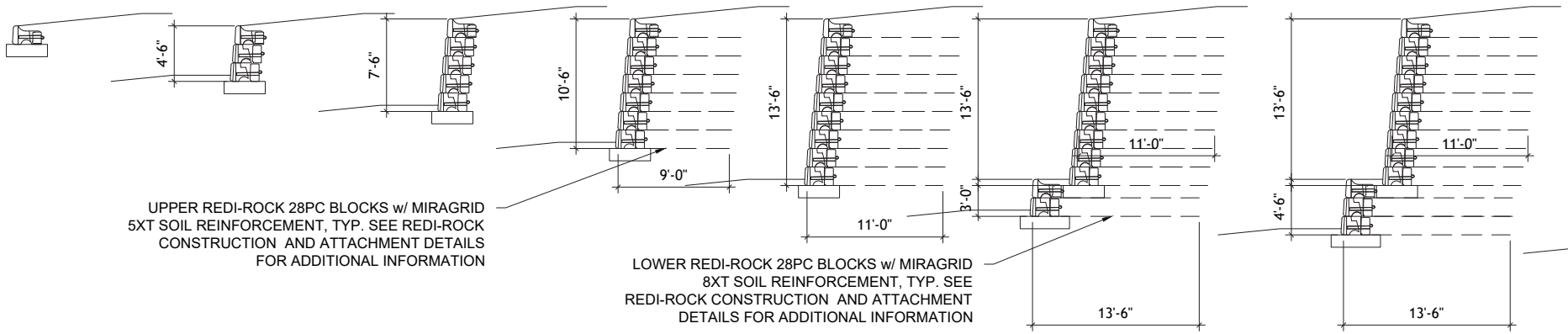
DRAWN BY: JKSA

CHECKED BY: JKSA

SCALE: AS NOTED

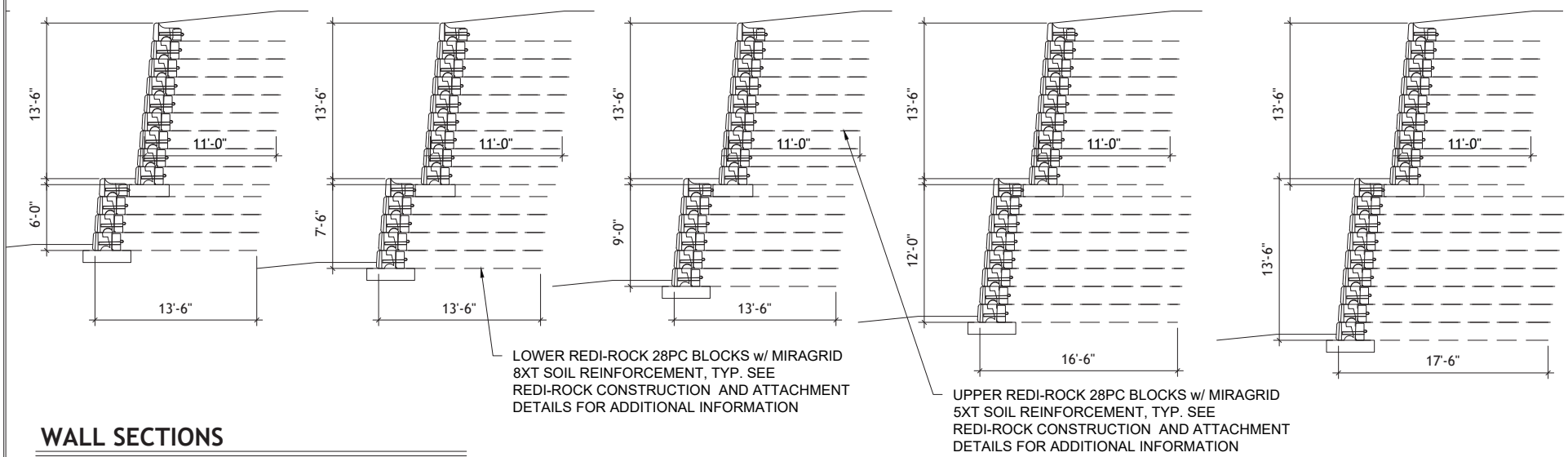
DATE: 9/29/2025

SHEET SR1



WALL SECTIONS

SCALE: 1/4" = 1'-0"



WALL SECTIONS

SCALE: 1/4" = 1'-0"

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WALL SECTIONS

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LEI PROJECT #: 2025-2318
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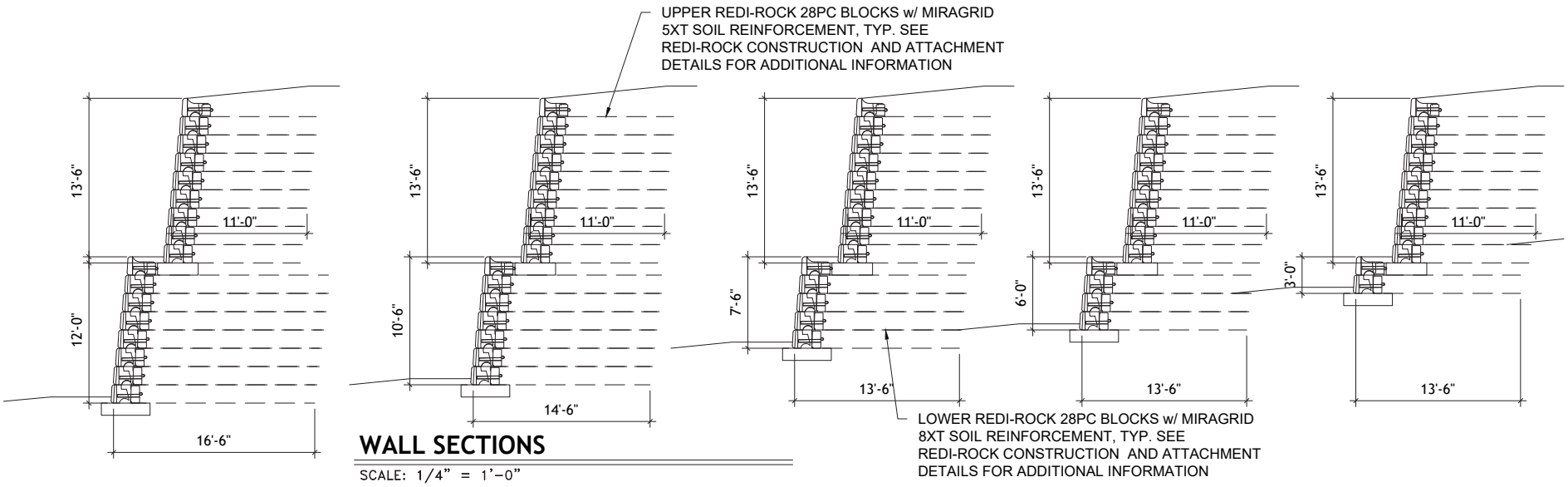
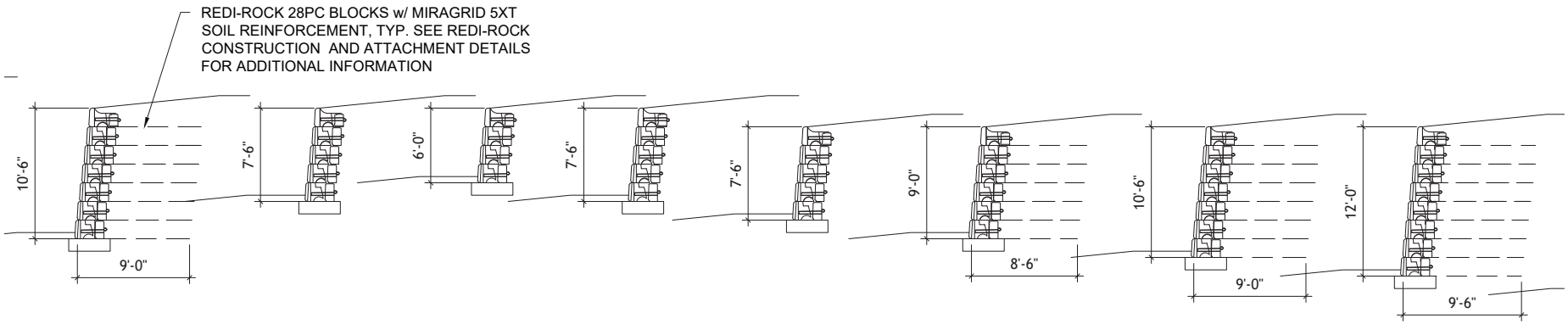
CHECKED BY: JKSA
SCALE: AS NOTED
DATE: 9/29/2025
SHEET
SR2



WALL SECTIONS

SCALE: 1/4" = 1'-0"



WALL SECTIONS

SCALE: 1/4" = 1'-0"

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LEI PROJECT #: 2025-2318
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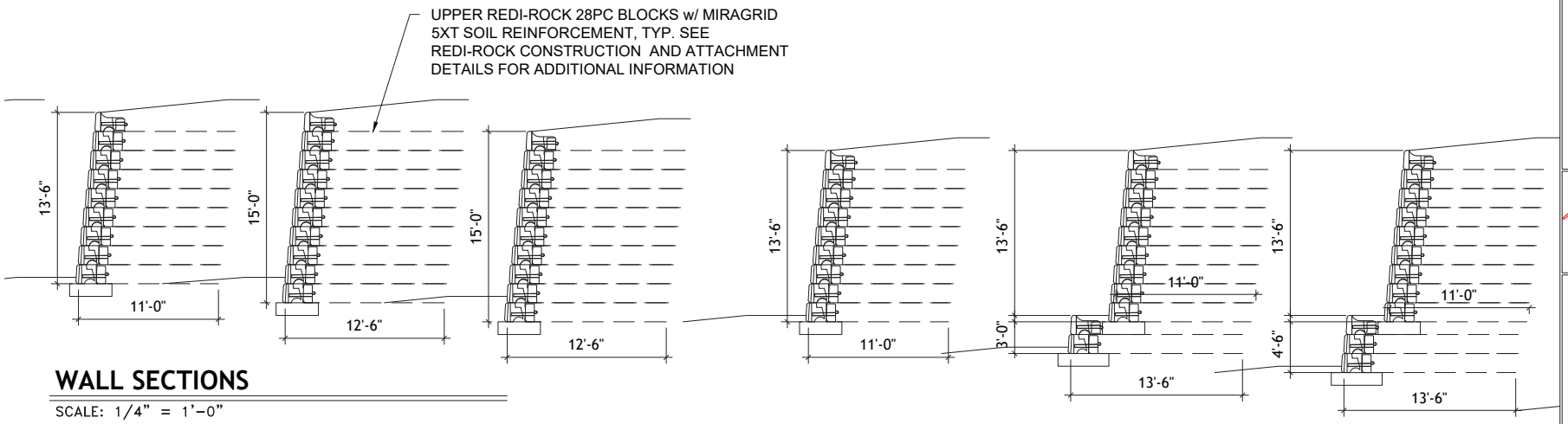
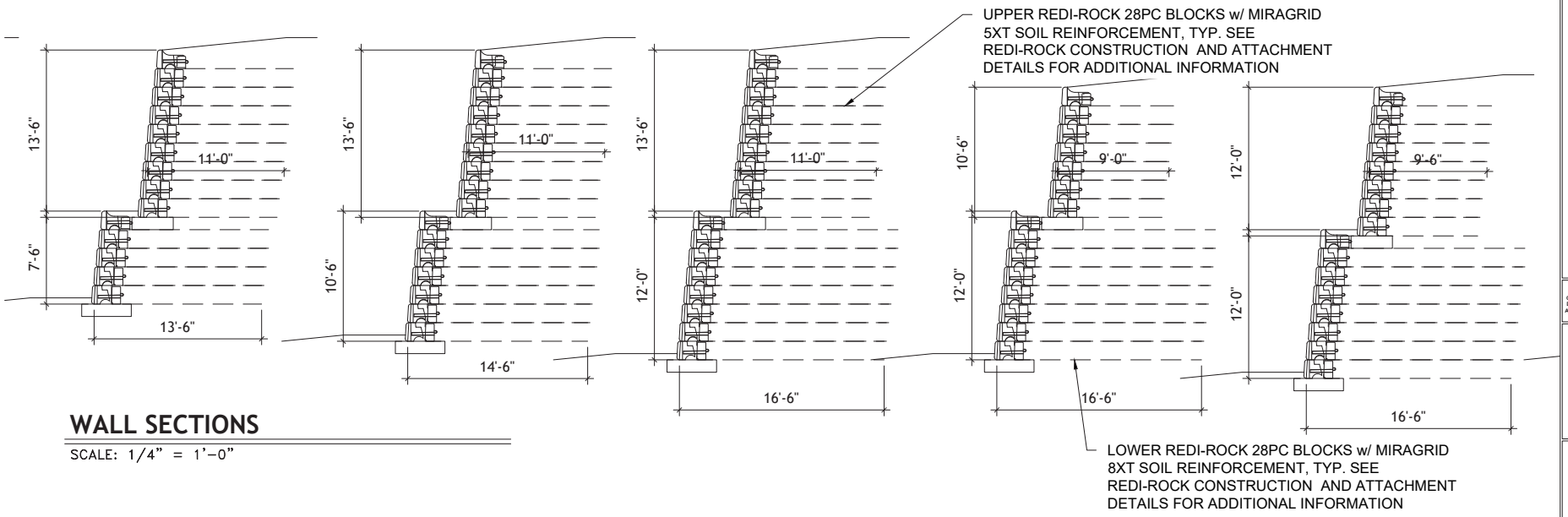
CHECKED BY: JKSA
SCALE: AS NOTED
DATE: 9/29/2025
SHEET
SR3



WALL SECTIONS

SCALE: 1/4" = 1'-0"



WALL SECTIONS

SCALE: 1/4" = 1'-0"

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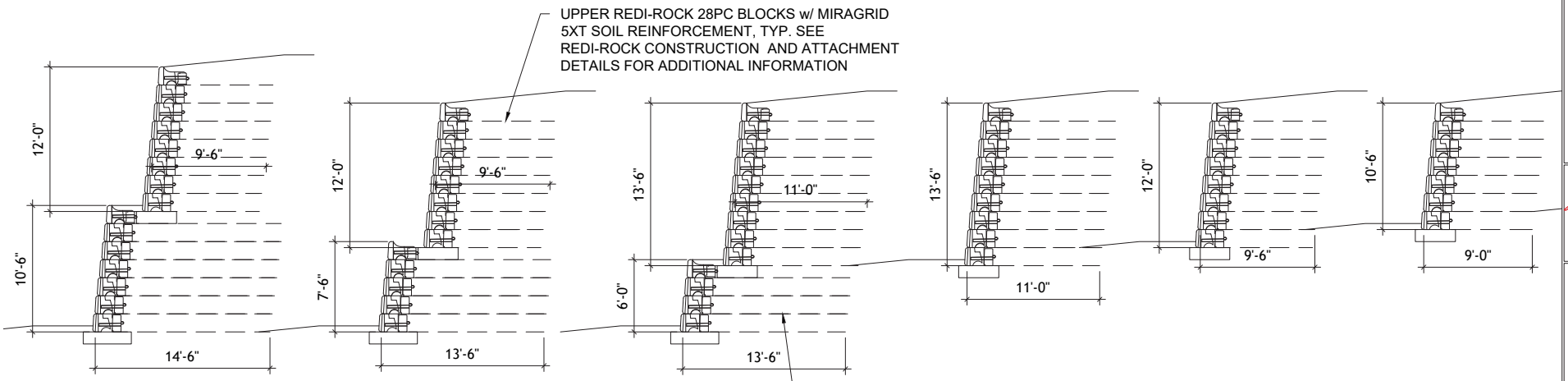
LEI PROJECT #: 2025-2318
DRAWN BY: JKSA
CHECKED BY: JKSA
SCALE: AS NOTED
DATE: 9/29/2025
SHEET
SR4



WALL SECTIONS

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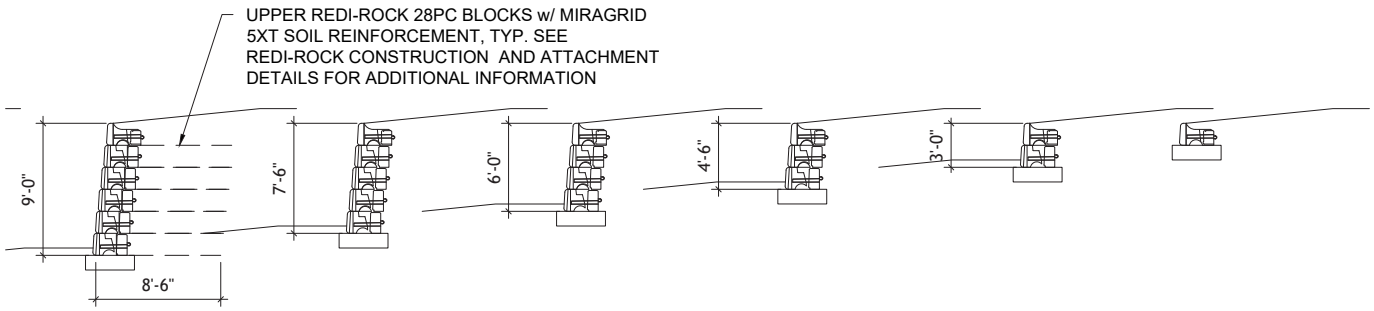

WALL SECTIONS

SCALE: 1/4" = 1'-0"

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WALL SECTIONS

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LEI PROJECT #: 2025-2318
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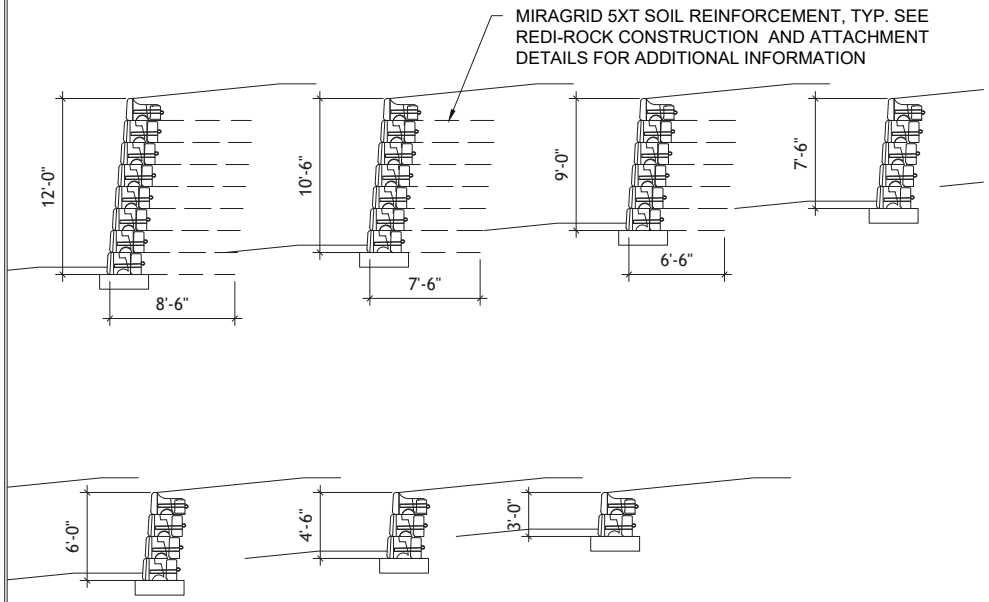
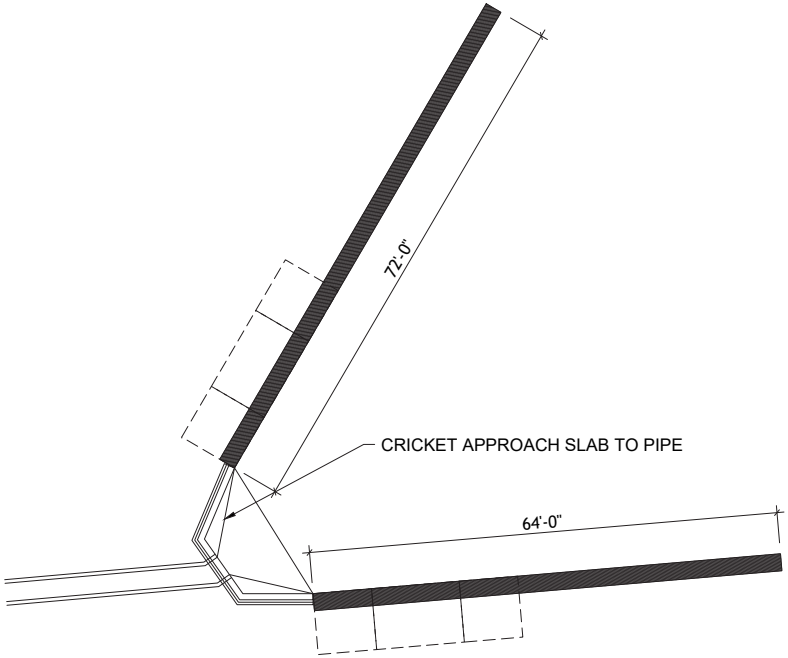
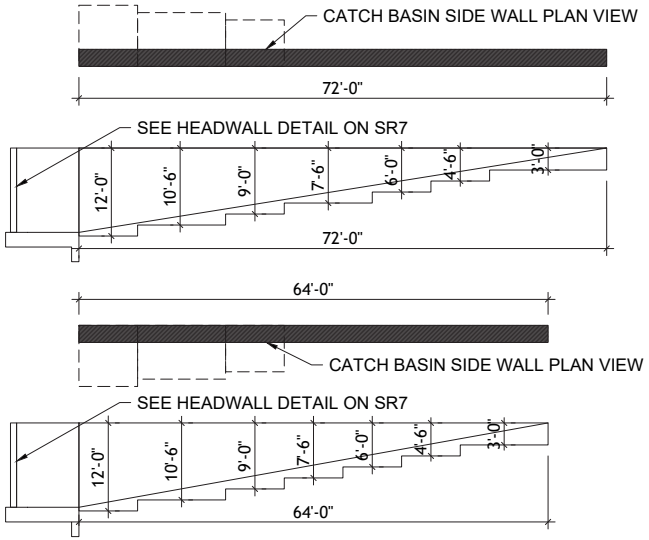
SCALE: AS NOTED
DATE: 9/29/2025
SHEET
SR5





HEADWALL/CATCH BASIN - PLAN VIEW

SCALE: 1/8" = 1'-0"



HEADWALL/RETAINING - ELEVATION VIEW

SCALE: 1/8" = 1'-0"

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HEAD WALL PLAN AND SECTIONS

DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR CONVENIENCE ONLY. VERIFY ALL DIMENSIONS WITH THE CURRENT ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

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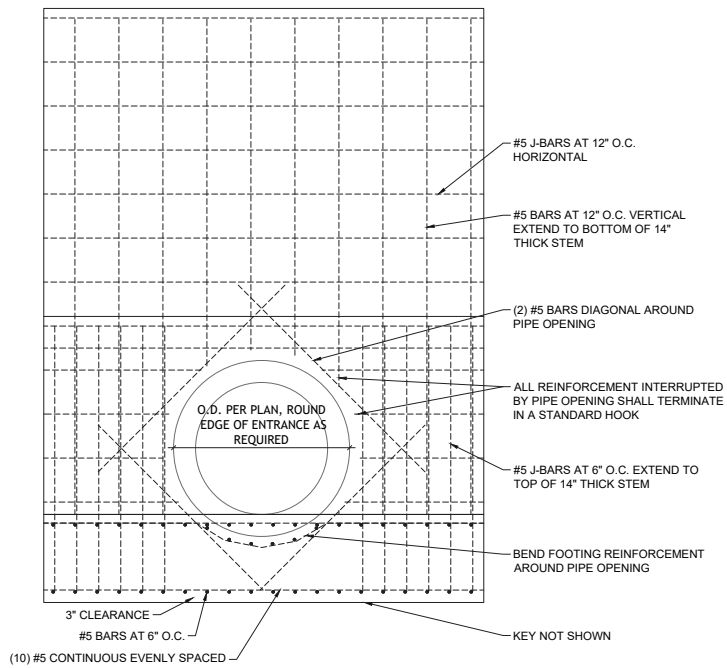
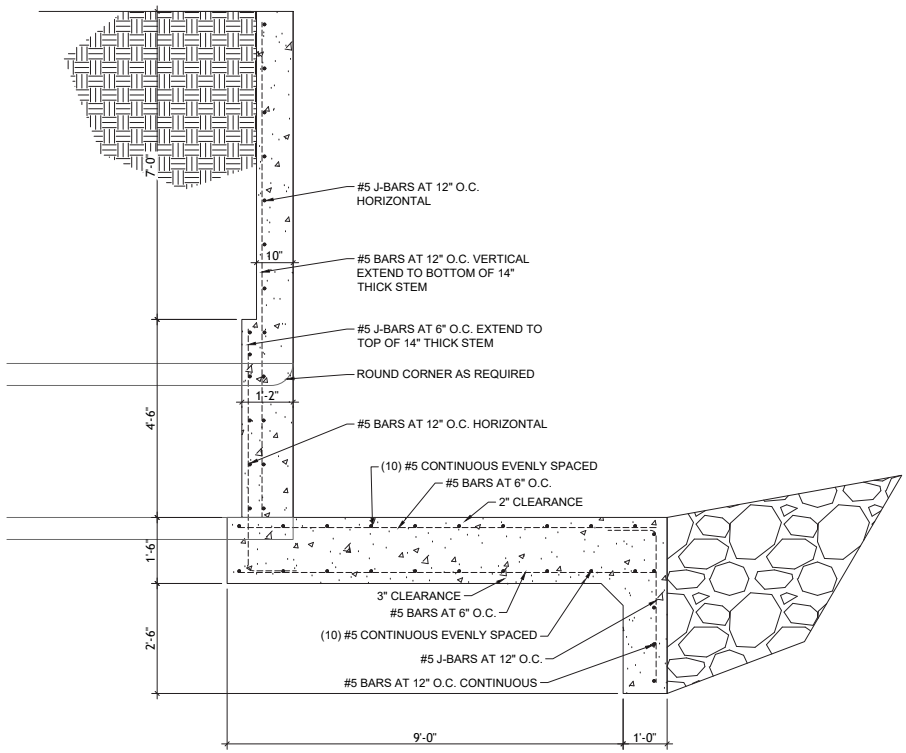
LEI PROJECT #: 2025-2318
DRAWN BY: JKSA
CHECKED BY: JKSA
SCALE: AS NOTED
DATE: 9/29/2025
SHEET: SR6



HEAD WALL ELEVATION



HEAD WALL SECTION

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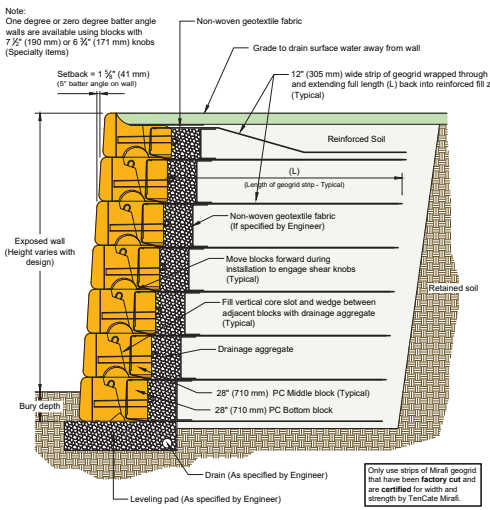
DRAWN BY: JKSA
CHECKED BY: JKSA
SCALE: AS NOTED
DATE: 9/29/2025
SHEET SR7

Typical Reinforced Wall Section



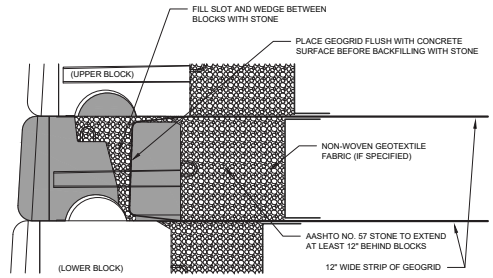
Only use strips of Mirafi geogrid that have been **factory cut** and are **certified** for width and strength by TenCate Mirafi.

This drawing is for reference only. Determination of the suitability and/or manner of use of any details contained in this document is the sole responsibility of the design engineer of record. Final project designs, including all construction details, shall be prepared by a licensed professional engineer using the actual conditions of the proposed site.

DRAWN BY: JRJ	TITLE: Typical Reinforced Wall Section	REDROCK	05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (866) 222-9400 ext 3010 • engineering@redi-rock.com www.redi-rock.com
APPROVED BY: JRJ			
DATE: 17MAR2016			
SHEET: 1 of 1	FILE: 2 Typical Gravity Wall Section 031716.dwg		

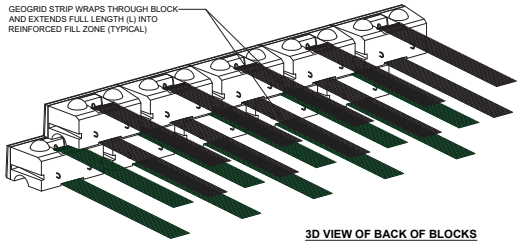
POSITIVE CONNECTION (PC) DETAILS

NO SCALE



SECTION VIEW THROUGH BLOCKS

NO SCALE

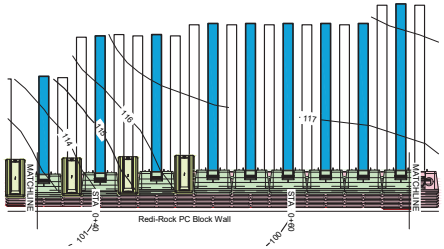


3D VIEW OF BACK OF BLOCKS

NO SCALE

DRAWN BY: JRJ	TITLE: Positive Connection Detail	REDROCK	05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (866) 222-9400 ext 3010 • engineering@redi-rock.com www.redi-rock.com
APPROVED BY: JRJ			
DATE: 06-22-2015			
SHEET: 1 of 1	FILE: 1 Positive Connection Detail 062215.dwg		

Sample Plan and Profile



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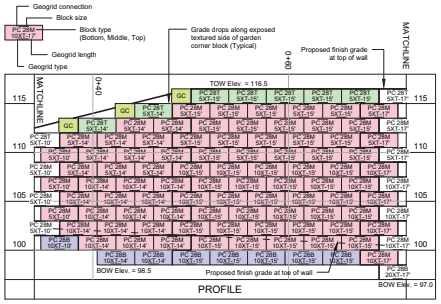

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DRAWN BY: JRJ	TITLE: Sample Plan and Profile	REDROCK	05481 US 31 SOUTH, CHARLEVOIX, MI 49720 (866) 222-9400 ext 3010 • engineering@redi-rock.com www.redi-rock.com
APPROVED BY: JRJ			
DATE: 06-22-2015			
SHEET: 1 of 1	FILE: 2 Sample Plan and Profile 062215.dwg		

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HEADWALL SECTION AND ELEVATION

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REVISIONS

	DESCRIPTION	DATE	BY
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5			

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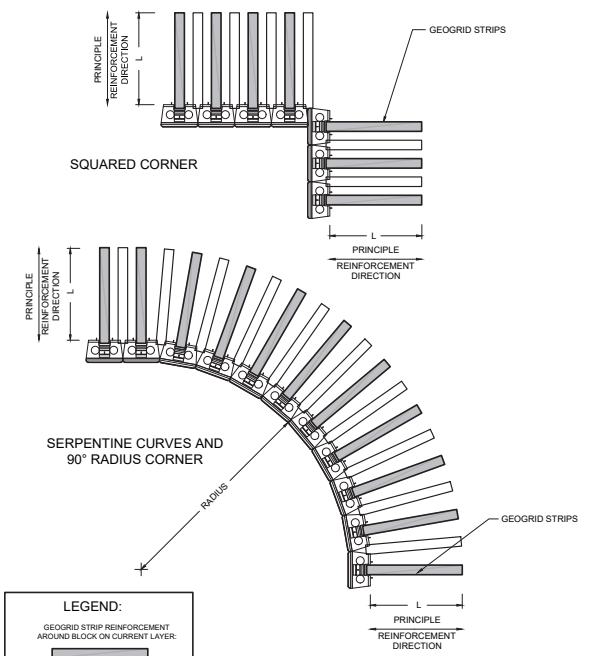
CHECKED BY: JKSA
SCALE: AS NOTED
DATE: 9/29/2025
SHEET: SR8

REINFORCEMENT PLACEMENT FOR CONCAVE CORNERS



LEGEND:

GEOGRID STRIP REINFORCEMENT AROUND BLOCK ON CURRENT LAYER:

GEOGRID STRIP REINFORCEMENT AROUND BLOCK ONE LAYER DOWN:

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CHECKED BY			
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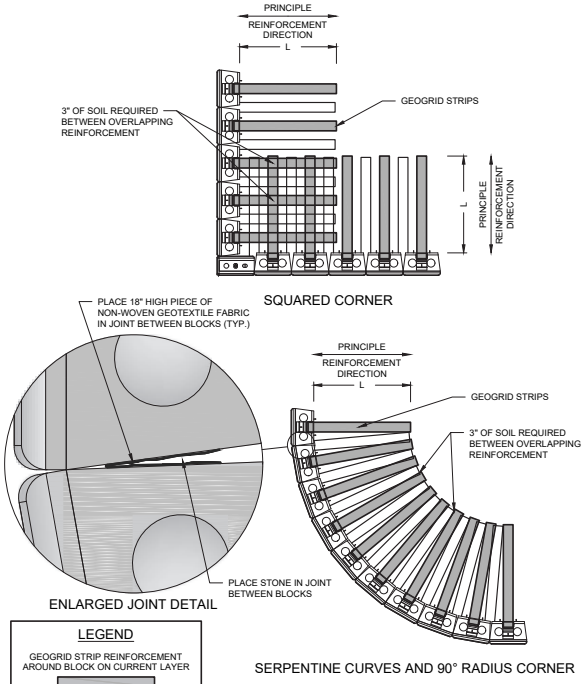
ISSUE DATE		SCALE NO SCALE	SHEET NO. 1 OF 1

REINFORCEMENT PLACEMENT FOR CONVEX CORNERS



LEGEND

GEOGRID STRIP REINFORCEMENT AROUND BLOCK ON CURRENT LAYER

GEOGRID STRIP REINFORCEMENT AROUND BLOCK ONE LAYER DOWN

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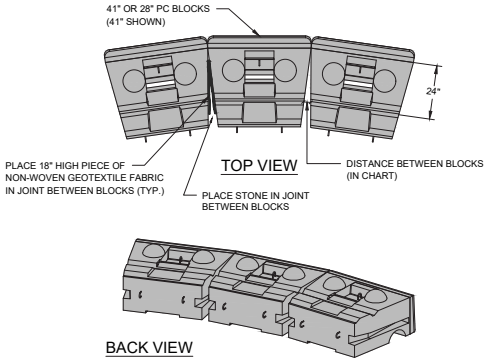
MINIMUM RADIUS FOR BOTTOM ROW

NUMBER OF COURSES	HEIGHT OF BLOCKS	RADIUS FROM FACE OF BLOCK	DISTANCE BETWEEN BLOCKS PER SKETCH
1	1'-6"	14'-6"	0.13"
2	3'-0"	14'-8"	0.21"
3	4'-6"	14'-10"	0.28"
4	6'-0"	15'-0"	0.36"
5	7'-6"	15'-2"	0.43"
6	9'-0"	15'-4"	0.50"
7	10'-6"	15'-6"	0.57"
8	12'-0"	15'-8"	0.63"
9	13'-6"	15'-10"	0.70"
10	15'-0"	16'-0"	0.76"
11	16'-6"	16'-2"	0.83"
12	18'-0"	16'-4"	0.88"
13	19'-6"	16'-6"	0.95"
14	21'-0"	16'-8"	1.01"



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APPROVED BY		DRAWING FILE Minimum Radius for Bottom Row PC 012711.dwg	REVISION ---
ISSUE DATE		SCALE NO SCALE	SHEET NO. 1 OF 1

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STATE OF UTAH
JOSHUA K.S. ANDERSON
No. 4693027-2203
PROFESSIONAL STRUCTURAL ENGINEER
9/29/2025
STRUCTURAL ELEMENTS ONLY

GCD SHORELINE SITE RETAINING

PHASE 4 SHORELINE SUBDIVISION, HIDEOUT, UTAH

HEADWALL SECTION AND ELEVATION

DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR CONVENIENCE ONLY. VERIFY ALL DIMENSIONS WITH THE CURRENT ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

REVISIONS

	DESCRIPTION	DATE	BY
1		-	-
2		-	-
3		-	-
4		-	-
5		-	-

LEI PROJECT #: 2025-2318
DRAWN BY: JKSA
CHECKED BY: JKSA
SCALE: AS NOTED
DATE: 9/29/2025
SHEET
SR9

Shoreline Phase 4 Site Retaining Walls

MSE & Gravity Designs

Structural Calculations

- A Utah Corporation -

ENGINEERS
SURVEYORS
PLANNERS

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LEI Project #:

2024-2149

Location:

Hideout, Utah

Date:

9/29/2025

Engineered by:

J. Anderson

Reviewed by:

STATE OF UTAH
JOSHUA K.S. ANDERSON
No. 4939007-2203
09/29/2025
PROFESSIONAL STRUCTURAL ENGINEER

APPLIES TO PAGES 1-89

Engineer's seal applies to this entire calculation packet.

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Cantilevered Retaining Wall

Project File: 2025-2318_GCD Shoreline Site Walls.ec6

LIC# : KW-06014416, Build:20.25.09.16 LEI CONSULTING ENGINEERS (c) ENERCALC, LLC 1982-2025

DESCRIPTION: catch basin headwall

Code References

Governing Code : IBC 2021
Referenced Design Standard(s) : ACI 318-19

Criteria

Retained Height	=	11.50 ft
Wall height above soil	=	0.00 ft
Slope Behind Wall	=	0.00
Height of Soil over Toe	=	0.00 in
Water table above bottom of footing	=	0.0 ft

Soil Data

Allow Soil Bearing	=	1,500.0	psf
Equivalent Fluid Pressure Method			
Active Heel Pressure	=	40.0	psf/ft
	=		
Passive Pressure	=	0.0	psf/ft
Soil Density, Heel	=	110.00	pcf
Soil Density, Toe	=	110.00	pcf
Footing||Soil Friction	=	0.400	
Soil height to ignore for passive pressure	=	0.00	in

Surcharge Loads

Surcharge Over Heel	=	0.0 psf
Used To Resist Sliding & Overturning		
Surcharge Over Toe	=	0.0 psf
Used for Sliding & Overturning		

Axial Load Applied to Stem

Axial Dead Load	=	0.0 lbs
Axial Live Load	=	0.0 lbs
Axial Load Eccentricity	=	0.0 in

Lateral Load Applied to Stem

Lateral Load	=	0.0 #/ft
...Height to Top	=	0.00 ft
...Height to Bottom	=	0.00 ft
Load Type	=	Wind (W) (Service Level)
Wind on Exposed Stem (Strength Level)	=	0.0 psf

Adjacent Footing Load

Adjacent Footing Load	=	0.0 lbs
Footing Width	=	0.00 ft
Eccentricity	=	0.00 in
Wall to Ftg CL Dist	=	0.00 ft
Footing Type		Line Load
Base Above/Below Soil at Back of Wall	=	0.0 ft
Poisson's Ratio	=	0.300

Cantilevered Retaining Wall

Project File: 2025-2318_GCD Shoreline Site Walls.ec6

LIC# : KW-06014416, Build:20.25.09.16 LEI CONSULTING ENGINEERS (c) ENERCALC, LLC 1982-2025

DESCRIPTION: catch basin headwall

Design Summary

Wall Stability Ratios

Overturning	=	2.25	OK
Slab Resists All Sliding !			
Global Stability	=	0.84	
Total Bearing Load	=	6,335 lbs	
...resultant ecc.	=	15.70 in	
Eccentricity within middle third			
Soil Pressure @ Toe	=	886 psf	OK
Soil Pressure @ Heel	=	107 psf	OK
Allowable	=	1,500 psf	
Soil Pressure Less Than Allowable			
ACI Factored @ Toe	=	1,241 psf	
ACI Factored @ Heel	=	149 psf	
Footing Shear @ Toe	=	24.0 psi	OK
Footing Shear @ Heel	=	2.9 psi	OK
Allowable	=	82.2 psi	

Sliding Calcs

Lateral Sliding Force	=	3,380.0 lbs

Vertical component of active lateral soil pressure IS NOT considered in the calculation of soil bearing pressures.

Load Factors

Building Code	
Dead Load	1.200
Live Load	1.600
Earth, H	1.600
Wind, W	1.600
Seismic, E	1.000

Stem Construction

		2nd	Bottom		
		Stem OK	Stem OK		
Design Height Above Ftg	ft =	4.50	0.00		
Wall Material Above "Ht"	=	Concrete	Concrete		
Design Method	=	SD	SD	SD	SD
Thickness	=	10.00	14.00		
Rebar Size	=	# 5	# 5		
Rebar Spacing	=	12.00	6.00		
Rebar Placed at	=	Edge	Edge		
Design Data					
fb/FB + fa/Fa	=	**0.332**	**0.502**		
Total Force @ Section					
Service Level	lbs =				
Strength Level	lbs =	1,568.0	4,232.0		
Moment....Actual					
Service Level	ft-# =				
Strength Level	ft-# =	3,658.7	16,222.7		
Moment.....Allowable	ft-# =	10,996.3	32,302.2		
Shear.....Actual					
Service Level	psi =				
Strength Level	psi =	16.0	28.9		
Shear.....Allowable	psi =	48.2	50.5		
Anet (Masonry)	in2 =				
Wall Weight	psf =	125.0	175.0		
Rebar Depth 'd'	in =	8.19	12.19		

Masonry Data

f'm	psi =	
Fs	psi =	
Solid Grouting	=	
Modular Ratio 'n'	=	
Equiv. Solid Thick.	=	
Masonry Block Type	=	
Masonry Design Method	=	ASD

Concrete Data

f'c	psi =	3,000.0	3,000.0
Fy	psi =	60,000.0	60,000.0

Cantilevered Retaining Wall

Project File: 2025-2318_GCD Shoreline Site Walls.ec6

LIC# : KW-06014416, Build:20.25.09.16 LEI CONSULTING ENGINEERS (c) ENERCALC, LLC 1982-2025

DESCRIPTION: catch basin headwall

Concrete Stem Rebar Area Details

2nd Stem	Vertical Reinforcing	Horizontal Reinforcing	
As (based on applied moment) :	0.1033 in2/ft		
0.0018bh : 0.0018(12)(10) :	0.216 in2/ft	Horizontal Reinforcing Options :	
	==========	One layer of :	Two layers of :
Required Area :	0.216 in2/ft	#4@ 11.11 in	#4@ 22.22 in
Provided Area :	0.31 in2/ft	#5@ 17.22 in	#5@ 34.44 in
Maximum Area :	1.331 in2/ft	#6@ 24.44 in	#6@ 48.89 in

Bottom Stem	Vertical Reinforcing	Horizontal Reinforcing	
As (based on applied moment) :	0.3037 in2/ft		
0.0018bh : 0.0018(12)(14) :	0.3024 in2/ft	Horizontal Reinforcing Options :	
	==========	One layer of :	Two layers of :
Required Area :	0.3037 in2/ft	#4@ 7.94 in	#4@ 15.87 in
Provided Area :	0.62 in2/ft	#5@ 12.30 in	#5@ 24.60 in
Maximum Area :	1.9812 in2/ft	#6@ 17.46 in	#6@ 34.92 in

Footing Data

Toe Width	=	8.50 ft
Heel Width	=	1.50
Total Footing Width	=	10.00
Footing Thickness	=	18.00 in
Key Width	=	12.00 in
Key Depth	=	30.00 in
Key Distance from Toe	=	0.00 ft

f'c = 3,000 psi Fy = 60,000 psi
Footing Concrete Density = 150.00 pcf
Min. As % = 0.0018
Cover @ Top 2.00 @ Btm.= 3.00 in

Footing Design Results

		Toe	Heel	Key	
Factored Pressure	=	1,241	149		psf
Mu' : Upward	=	33,660	9		ft-#
Mu' : Downward	=	9,754	99		ft-#
Mu: Design	=	23,906	90	795	ft-#
φ Mn	=	39,282	42,072	7,946	ft-#
Actual 1-Way Shear	=	24.01	2.90	4.41	psi
Allow 1-Way Shear	=	49.98	48.89	53.46	psi

Toe Reinforcing = # 5 @ 6.00 in
Heel Reinforcing = # 5 @ 6.00 in
Key Reinforcing = # 5 @ 12.00 in
Footing Torsion, Tu = 0.00 ft-lbs
Footing Allow. Torsion, φ Tn = 0.00 ft-lbs

If torsion exceeds allowable, provide supplemental design for footing torsion.

Other Acceptable Sizes & Spacings

Toe: #4@ 4.8 in, #5@ 7.44 in, #6@ 10.57 in, #7@ 14.41 in, #8@ 18 in, #9@ 18 in, #10@ 18 in

Heel: #4@ 6.17 in, #5@ 9.56 in, #6@ 13.58 in, #7@ 18 in, #8@ 18 in, #9@ 18 in, #10@ 18 in

Key: Slab Resists Sliding - No Force on Key

Min footing T&S reinf Area 3.89 in2
Min footing T&S reinf Area per foot 0.39 in2 /ft

If one layer of horizontal bars:	If two layers of horizontal bars:
#4@ 6.17 in	#4@ 12.35 in
#5@ 9.57 in	#5@ 19.14 in
#6@ 13.58 in	#6@ 27.16 in

Cantilevered Retaining Wall

Project File: 2025-2318_GCD Shoreline Site Walls.ec6

LIC# : KW-06014416, Build:20.25.09.16 LEI CONSULTING ENGINEERS (c) ENERCALC, LLC 1982-2025

DESCRIPTION: catch basin headwall

Summary of Overturning & Resisting Forces & Moments

Item		.....OVERTURNING..... Force lbs	Distance ft	Moment ft-#
HL Act Pres (ab water tbl)		3,380.0	4.33	14,646.7
HL Act Pres (be water tbl)				
Hydrostatic Force				
Buoyant Force	=			
Surcharge over Heel	=			
Surcharge Over Toe	=			
Adjacent Footing Load	=			
Added Lateral Load	=			
Load @ Stem Above Soil	=			
	=			
Total	=	3,380.0	**O.T.M.** =	14,646.7

Resisting/Overturning Ratio = **2.25**

Vertical Loads used for Soil Pressure = 6,335.2 lbs

		.....RESISTING..... Force lbs	Distance ft	Moment ft-#
Soil Over HL (ab. water tbl)		421.7	9.83	4,146.4
Soil Over HL (bel. water tbl)			9.83	4,146.4
Water Table				
Sloped Soil Over Heel	=			
Surcharge Over Heel	=			
Adjacent Footing Load	=			
Axial Dead Load on Stem	=			
* Axial Live Load on Stem	=			
Soil Over Toe	=			
Surcharge Over Toe	=			
Stem Weight(s)	=	1,662.5	9.00	14,955.2
Earth @ Stem Transitions	=	256.7	9.50	2,438.3
Footing Weight	=	2,250.0	5.00	11,250.0
Key Weight	=	375.0	0.50	187.5
Vert. Component	=			
Total =		4,965.8 lbs	**R.M.=**	32,977.4

* Axial live load NOT included in total displayed, or used for overturning resistance, but is included for soil pressure calculation.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Sliding Resistance.

Vertical component of active lateral soil pressure IS NOT considered in the calculation of Overturning Resistance.

Tilt

Horizontal Deflection at Top of Wall due to settlement of soil

(Deflection due to wall bending not considered)

Soil Spring Reaction Modulus	250.0	pci
Horizontal Defl @ Top of Wall (approximate only)	0.028	in

The above calculation is not valid if the heel soil bearing pressure exceeds that of the toe, because the wall would then tend to rotate into the retained soil.

DESCRIPTION: catch basin headwall

Rebar Lap & Embedment Lengths Information

Stem Design Segment: 2nd
Stem Design Height: 4.50 ft above top of footing

Lap Splice length for #5 bar specified in this stem design segment (25.4.2.4a) =	21.36 in
Development length for #5 bar specified in this stem design segment =	16.43 in

---

Stem Design Segment: Bottom
Stem Design Height: 0.00 ft above top of footing

Lap Splice length for #5 bar specified in this stem design segment (25.4.2.4a) =	21.36 in
Development length for #5 bar specified in this stem design segment =	16.43 in
Hooked embedment length into footing for #5 bar specified in this stem design segment =	7.87 in
As Provided =	0.6200 in2/ft
As Required =	0.4050 in2/ft

Analysis of Redi Rock wall

Input data

Date : 8/25/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135
4	0.781
5	1.385

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Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	4	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - gravel

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	backfill		35.00	0.0	110.00	57.50	23.33
2	gravel		35.00	0.0	125.00	72.50	23.33

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

backfill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 23.33 °
Saturated unit weight : γ_{sat} = 120.0 pcf

gravel

Unit weight : γ = 125.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 23.33 °
Saturated unit weight : γ_{sat} = 135.0 pcf

Backfill

Backfill is not considered.

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	7.50	0.00 .. 7.50	backfill	

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No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
2	-	7.50 .. ∞	backfill	

Terrain profile

Terrain behind the structure is flat.

Water influence

Ground water table is located below the structure.

Resistance on front face of the structure

Resistance on front face of the structure is not considered.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-3.91	2424.4	1.88	1.000
Weight - earth wedge	0.0	-1.27	22.2	3.02	1.000
Weight - earth wedge	0.0	-8.29	82.9	2.36	1.000
Active pressure	863.9	-2.72	585.1	3.15	1.000

Verification of complete wall

Check for overturning stability

Resisting moment M_{res} = 6661.3 lbfft/ft
Overturning moment M_{ovr} = 2348.3 lbfft/ft

Safety factor = 2.84 > 1.50
Wall for overturning is SATISFACTORY

Check for slip

Resisting horizontal force H_{res} = 2180.84 lbf/ft
Active horizontal force H_{act} = 863.89 lbf/ft

Safety factor = 2.52 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Dimensioning No. 1

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-3.61	2008.1	1.42	1.000
Weight - earth wedge	0.0	-7.29	82.9	1.86	1.000
Active pressure	621.1	-2.52	211.0	2.57	1.000

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 9' upper wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	5	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
1	Miragrid 5XT	Miragrid 5XT	- – – – – – –	4700.00	2806.39	2478.18

1. Miragrid 5XT

Reinforcement details

Short-term char. strength	T_{ult}	=	4700.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	2806.39	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	2478.18	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 5XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 6.00 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 5XT	6.00	
2	Yes	Miragrid 5XT	6.00	
3	Yes	Miragrid 5XT	6.00	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
4	Yes	Miragrid 5XT	6.00	
5	Yes	Miragrid 5XT	6.00	
6	No			

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

leveling pad 1

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 40.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 26.70 °

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Saturated unit weight : γ_{sat} = 115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure h = 1.50 ft
Soil slope in front of structure β = -10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-4.79	6383.1	5.66	1.000
Active pressure	1116.6	-3.29	781.8	8.87	1.000
townhomes	1247.3	-3.15	873.4	8.87	1.000
Weight - wall	0.0	-4.33	2424.2	1.48	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment M_{res} = 54405.9 lbfft/ft
Overturning moment M_{ovr} = 7600.0 lbfft/ft

Safety factor = 7.16 > 1.50

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Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force H_{res} = 6959.62 lbf/ft
Active horizontal force H_{act} = 2363.87 lbf/ft

Safety factor = 2.94 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-3212.2	10462.50	2363.87	0.000	1255.5

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-3212.2	10462.50	2363.87

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 1255.5 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 4.78 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-4.33	2396.2	-0.85	1.000
Active pressure	1077.9	-3.27	708.3	6.12	1.000
townhomes	1246.4	-3.00	814.4	6.11	1.000
Weight - reinforced soil	0.0	-4.69	6147.6	3.27	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 88.00 °
Overall normal force acting on reinforcement = 7670.36 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95

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Resistance along geo-reinforcement = 5102.30 lbf/ft
Wall resistance = 2010.68 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 7112.99 lbf/ft
Active horiz. force H_{act} = 2324.31 lbf/ft

Factor of safety = 3.06 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 701.60 lbf/ft
Force in reinforcement F_x = 140.59 lbf/ft

Safety factor = 4.99 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 1742.15 lbf/ft
Force in reinforcement F_x = 140.59 lbf/ft

Safety factor = 12.39 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 619.55 lbf/ft
Force in reinforcement F_x = 140.59 lbf/ft

Safety factor = 4.41 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

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Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-4.79	6383.1	5.66	1.000
Earthquake - soil wedge	1276.6	-4.79	0.0	5.66	1.000
Active pressure	1116.6	-3.29	781.8	8.87	1.000
Earthq.- act.pressure	728.8	-6.52	510.3	8.87	1.000
townhomes	1247.3	-3.15	873.4	8.87	1.000
Weight - wall	0.0	-4.33	2424.2	1.48	1.000
Earthq.- constr.	484.8	-4.33	0.0	1.48	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment $M_{res} = 58933.4$ lbfft/ft
Overturning moment $M_{ovr} = 20560.3$ lbfft/ft

Safety factor = 2.87 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force $H_{res} = 7299.10$ lbf/ft
Active horizontal force $H_{act} = 4854.17$ lbf/ft

Safety factor = 1.50 > 1.50
Wall for slip is SATISFACTORY

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Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	7347.1	10972.84	4854.17	0.080	1568.8

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	7347.1	10972.84	4854.17

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.080
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 1568.8 psf
Allowable bearing capacity of foundation soil R_d = 5000.0 psf

Safety factor = 3.19 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-4.33	2396.2	-0.85	1.000
Earthq.- constr.	479.2	-4.33	0.0	-0.85	1.000
Active pressure	1077.9	-3.27	708.3	6.12	1.000
Earthq.- act.pressure	720.8	-6.51	468.3	6.23	1.000
townhomes	1246.4	-3.00	814.4	6.11	1.000
Weight - reinforced soil	0.0	-4.69	6147.6	3.27	1.000
Earthquake - soil wedge	1216.4	-4.69	0.0	3.27	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 88.00 °
Overall normal force acting on reinforcement = 8138.66 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 5413.81 lbf/ft
Wall resistance = 2010.68 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

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Check for slip:

Resisting horizontal force H_{res} = 7424.50 lbf/ft

Active horiz. force H_{act} = 3045.07 lbf/ft

Factor of safety = 2.44 > 1.50

Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength

Tension strength R_t = 701.60 lbf/ft

Force in reinforcement F_x = 144.53 lbf/ft

Safety factor = 4.85 > 1.50

Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance

Pull out resistance T_p = 1742.15 lbf/ft

Force in reinforcement F_x = 144.53 lbf/ft

Safety factor = 12.05 > 1.50

Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength

Connection strength R_{con} = 619.55 lbf/ft

Force in reinforcement F_x = 144.53 lbf/ft

Safety factor = 4.29 > 1.50

Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 10'-6 upper wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	6	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
1	Miragrid 5XT	Miragrid 5XT	- – – – – – –	4700.00	2806.39	2478.18

1. Miragrid 5XT

Reinforcement details

Short-term char. strength	T_{ult}	=	4700.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	2806.39	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	2478.18	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 5XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 6.50 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 5XT	6.50	
2	Yes	Miragrid 5XT	6.50	
3	Yes	Miragrid 5XT	6.50	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
4	Yes	Miragrid 5XT	6.50	
5	Yes	Miragrid 5XT	6.50	
6	Yes	Miragrid 5XT	6.50	
7	No			

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

leveling pad 1

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 40.00 °
Cohesion of soil : c_{ef} = 0.0 psf

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Angle of friction struc.-soil : δ = 26.70 °
Saturated unit weight : γ_{sat} = 115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure h = 1.50 ft
Soil slope in front of structure β = -10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-5.54	8005.9	5.99	1.000
Active pressure	1482.8	-3.81	1038.3	9.51	1.000
townhomes	1247.3	-5.18	873.4	9.51	1.000
Weight - wall	0.0	-5.08	2844.2	1.55	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment M_{res} = 70557.0 lbfft/ft
Overturning moment M_{ovr} = 12105.1 lbfft/ft

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Safety factor = 5.83 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force H_{res} = 8489.05 lbf/ft
Active horizontal force H_{act} = 2730.08 lbf/ft

Safety factor = 3.11 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-2087.8	12761.70	2730.08	0.000	1444.7

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-2087.8	12761.70	2730.08

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 1444.7 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 4.15 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-5.08	2815.5	-0.78	1.000
Active pressure	1477.8	-3.79	1034.7	6.50	1.000
townhomes	1247.3	-4.46	873.4	6.50	1.000
Weight - reinforced soil	0.0	-5.36	7429.6	3.47	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 9337.66 lbf/ft

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Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 6211.39 lbf/ft
Wall resistance = 2362.51 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 8573.90 lbf/ft
Active horiz. force H_{act} = 2725.06 lbf/ft

Factor of safety = 3.15 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 701.60 lbf/ft
Force in reinforcement F_x = 269.23 lbf/ft

Safety factor = 2.61 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 2190.03 lbf/ft
Force in reinforcement F_x = 269.23 lbf/ft

Safety factor = 8.13 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 619.55 lbf/ft
Force in reinforcement F_x = 269.23 lbf/ft

Safety factor = 2.30 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

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Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-5.54	8005.9	5.99	1.000
Earthquake - soil wedge	1601.2	-5.54	0.0	5.99	1.000
Active pressure	1482.8	-3.81	1038.3	9.51	1.000
Earthq.- act.pressure	959.1	-7.55	671.6	9.51	1.000
townhomes	1247.3	-5.18	873.4	9.51	1.000
Weight - wall	0.0	-5.08	2844.2	1.55	1.000
Earthq.- constr.	568.8	-5.08	0.0	1.55	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment $M_{res} = 76941.1$ lbfft/ft
Overturning moment $M_{ovr} = 31116.2$ lbfft/ft

Safety factor = 2.47 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force $H_{res} = 8935.79$ lbf/ft
Active horizontal force $H_{act} = 5859.23$ lbf/ft

Safety factor = 1.53 > 1.50
Wall for slip is SATISFACTORY

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Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	13505.5	13433.29	5859.23	0.114	1968.9

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	13505.5	13433.29	5859.23

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification

Max. eccentricity of normal force e = 0.114
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity

Max. stress at footing bottom σ = 1968.9 psf
Allowable bearing capacity of foundation soil R_d = 5000.0 psf

Safety factor = 2.54 > 2.00

Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-5.08	2815.5	-0.78	1.000
Earthq.- constr.	563.1	-5.08	0.0	-0.78	1.000
Active pressure	1477.8	-3.79	1034.7	6.50	1.000
Earthq.- act.pressure	962.8	-7.51	674.2	6.50	1.000
townhomes	1247.3	-4.46	873.4	6.50	1.000
Weight - reinforced soil	0.0	-5.36	7429.6	3.47	1.000
Earthquake - soil wedge	1472.8	-5.36	0.0	3.47	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 10011.82 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 6659.83 lbf/ft
Wall resistance = 2362.51 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

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Check for slip:

Resisting horizontal force H_{res} = 9022.34 lbf/ft

Active horiz. force H_{act} = 3687.85 lbf/ft

Factor of safety = 2.45 > 1.50

Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength

Tension strength R_t = 701.60 lbf/ft

Force in reinforcement F_x = 273.16 lbf/ft

Safety factor = 2.57 > 1.50

Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance

Pull out resistance T_p = 2190.03 lbf/ft

Force in reinforcement F_x = 273.16 lbf/ft

Safety factor = 8.02 > 1.50

Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength

Connection strength R_{con} = 619.55 lbf/ft

Force in reinforcement F_x = 273.16 lbf/ft

Safety factor = 2.27 > 1.50

Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 12' upper wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	7	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
1	Miragrid 5XT	Miragrid 5XT	- – – – – – –	4700.00	2806.39	2478.18

1. Miragrid 5XT

Reinforcement details

Short-term char. strength	T_{ult}	=	4700.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	2806.39	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	2478.18	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 5XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 7.00 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 5XT	7.00	
2	Yes	Miragrid 5XT	7.00	
3	Yes	Miragrid 5XT	7.00	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
4	Yes	Miragrid 5XT	7.00	
5	Yes	Miragrid 5XT	7.00	
6	Yes	Miragrid 5XT	7.00	
7	Yes	Miragrid 5XT	7.00	
8	No			

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

leveling pad 1

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 40.00 °

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Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 26.70 °
Saturated unit weight : γ_{sat} = 115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure h = 1.50 ft
Soil slope in front of structure β = -10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-6.30	9796.4	6.32	1.000
Active pressure	1898.8	-4.32	1329.5	10.14	1.000
townhomes	1247.3	-7.20	873.4	10.14	1.000
Weight - wall	0.0	-5.83	3264.2	1.62	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment M_{res} = 89551.9 lbfft/ft
Overturning moment M_{ovr} = 17187.9 lbfft/ft

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Safety factor = 5.21 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force H_{res} = 10153.23 lbf/ft
Active horizontal force H_{act} = 3146.06 lbf/ft

Safety factor = 3.23 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-1134.3	15263.50	3146.06	0.000	1635.4

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-1134.3	15263.50	3146.06

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 1635.4 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 3.67 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-5.83	3235.0	-0.72	1.000
Active pressure	1894.0	-4.31	1326.2	7.00	1.000
townhomes	1247.3	-6.35	873.4	7.00	1.000
Weight - reinforced soil	0.0	-6.09	9038.0	3.75	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °

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Overall normal force acting on reinforcement = 11237.50 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 7475.15 lbf/ft
Wall resistance = 2714.47 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 10189.62 lbf/ft
Active horiz. force H_{act} = 3141.26 lbf/ft

Factor of safety = 3.24 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 701.60 lbf/ft
Force in reinforcement F_x = 327.76 lbf/ft

Safety factor = 2.14 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 2684.48 lbf/ft
Force in reinforcement F_x = 327.76 lbf/ft

Safety factor = 8.19 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 619.55 lbf/ft
Force in reinforcement F_x = 327.76 lbf/ft

Safety factor = 1.89 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

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Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-6.30	9796.4	6.32	1.000
Earthquake - soil wedge	1959.3	-6.30	0.0	6.32	1.000
Active pressure	1898.8	-4.32	1329.5	10.14	1.000
Earthq.- act.pressure	1221.3	-8.59	855.1	10.14	1.000
townhomes	1247.3	-7.20	873.4	10.14	1.000
Weight - wall	0.0	-5.83	3264.2	1.62	1.000
Earthq.- constr.	652.8	-5.83	0.0	1.62	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment $M_{res} = 98223.5$ lbfft/ft
Overturning moment $M_{ovr} = 43830.6$ lbfft/ft

Safety factor = 2.24 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force $H_{res} = 10722.08$ lbf/ft
Active horizontal force $H_{act} = 6979.46$ lbf/ft

Safety factor = 1.54 > 1.50
Wall for slip is SATISFACTORY

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Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	20827.5	16118.64	6979.46	0.138	2388.3

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	20827.5	16118.64	6979.46

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.138
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2388.3 psf
Allowable bearing capacity of foundation soil R_d = 5000.0 psf

Safety factor = 2.09 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-5.83	3235.0	-0.72	1.000
Earthq.- constr.	647.0	-5.83	0.0	-0.72	1.000
Active pressure	1894.0	-4.31	1326.2	7.00	1.000
Earthq.- act.pressure	1226.0	-8.53	858.4	7.00	1.000
townhomes	1247.3	-6.35	873.4	7.00	1.000
Weight - reinforced soil	0.0	-6.09	9038.0	3.75	1.000
Earthquake - soil wedge	1794.5	-6.09	0.0	3.75	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 12095.95 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 8046.19 lbf/ft
Wall resistance = 2714.47 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

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Check for slip:
Resisting horizontal force H_{res} = 10760.66 lbf/ft
Active horiz. force H_{act} = 4367.26 lbf/ft

Factor of safety = 2.46 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 701.60 lbf/ft
Force in reinforcement F_x = 331.70 lbf/ft

Safety factor = 2.12 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 2684.48 lbf/ft
Force in reinforcement F_x = 331.70 lbf/ft

Safety factor = 8.09 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 619.55 lbf/ft
Force in reinforcement F_x = 331.70 lbf/ft

Safety factor = 1.87 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 13'-6 upper wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	8	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
1	Miragrid 5XT	Miragrid 5XT	- – – – – – –	4700.00	2806.39	2478.18

1. Miragrid 5XT

Reinforcement details

Short-term char. strength	T_{ult}	=	4700.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	2806.39	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	2478.18	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 5XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 8.51 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 5XT	8.51	
2	Yes	Miragrid 5XT	8.51	
3	Yes	Miragrid 5XT	8.51	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
4	Yes	Miragrid 5XT	8.51	
5	Yes	Miragrid 5XT	8.51	
6	Yes	Miragrid 5XT	8.51	
7	Yes	Miragrid 5XT	8.51	
8	Yes	Miragrid 5XT	8.51	
9	No			

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

leveling pad 1

Unit weight : γ = 110.0 pcf

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Stress-state : effective
Angle of internal friction : φ_{ef} = 40.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 26.70 °
Saturated unit weight : γ_{sat} = 115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure h = 1.50 ft
Soil slope in front of structure β = -10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-7.08	13362.8	7.17	1.000
Active pressure	2365.4	-4.83	1656.3	11.78	1.000
townhomes	1040.2	-10.15	728.3	11.78	1.000
Weight - wall	0.0	-6.58	3684.2	1.69	1.000
townhomes	0.0	-10.50	569.7	11.64	1.000

Verification of complete wall

Place of verification : bottom of blocks

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Check for overturning stability
Resisting moment M_{res} = 136691.7 lbfft/ft
Overturning moment M_{ovr} = 21992.9 lbfft/ft

Safety factor = 6.22 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force H_{res} = 15114.25 lbf/ft
Active horizontal force H_{act} = 3405.55 lbf/ft

Safety factor = 4.44 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-6258.6	20001.28	3405.55	0.000	1844.6

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-6258.6	20001.28	3405.55

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 1844.6 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 3.25 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-6.58	3654.5	-0.65	1.000
Active pressure	2320.9	-4.91	1649.1	8.51	1.000
townhomes	1247.3	-9.29	873.4	8.51	1.000

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Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-6.86	12388.7	4.55	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 14911.08 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 9918.81 lbf/ft
Wall resistance = 3066.52 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 12985.33 lbf/ft
Active horiz. force H_{act} = 3568.18 lbf/ft

Factor of safety = 3.64 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 701.60 lbf/ft
Force in reinforcement F_x = 331.96 lbf/ft

Safety factor = 2.11 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 3673.11 lbf/ft
Force in reinforcement F_x = 331.96 lbf/ft

Safety factor = 11.06 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 619.55 lbf/ft
Force in reinforcement F_x = 331.96 lbf/ft

Safety factor = 1.87 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

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Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-7.08	13362.8	7.17	1.000
Earthquake - soil wedge	2672.6	-7.08	0.0	7.17	1.000
Active pressure	2365.4	-4.83	1656.3	11.78	1.000
Earthq.- act.pressure	1510.9	-9.67	1057.9	11.78	1.000
townhomes	1040.2	-10.15	728.3	11.78	1.000
Weight - wall	0.0	-6.58	3684.2	1.69	1.000
Earthq.- constr.	736.8	-6.58	0.0	1.69	1.000
townhomes	0.0	-10.50	569.7	11.64	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment $M_{res} = 149159.4$ lbfft/ft
Overturning moment $M_{ovr} = 60380.8$ lbfft/ft

Safety factor = 2.47 > 1.50
Wall for overturning is SATISFACTORY

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Check for slip
Resisting horizontal force H_{res} = 15913.69 lbf/ft
Active horizontal force H_{act} = 8325.84 lbf/ft

Safety factor = 1.91 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	25397.4	21059.21	8325.84	0.111	2497.7

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	25397.4	21059.21	8325.84

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.111
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2497.7 psf
Allowable bearing capacity of foundation soil R_d = 5000.0 psf

Safety factor = 2.00 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-6.58	3654.5	-0.65	1.000
Earthq.- constr.	730.9	-6.58	0.0	-0.65	1.000
Active pressure	2320.9	-4.91	1649.1	8.51	1.000
Earthq.- act.pressure	1553.6	-9.57	1088.5	8.51	1.000
townhomes	1247.3	-9.29	873.4	8.51	1.000
Weight - reinforced soil	0.0	-6.86	12388.7	4.55	1.000
Earthquake - soil wedge	2464.6	-6.86	0.0	4.55	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °

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Overall normal force acting on reinforcement	=	15999.57	lbf/ft
Coefficient of reduction of slip along geo-textile	=	0.95	
Resistance along geo-reinforcement	=	10642.87	lbf/ft
Wall resistance	=	3066.52	lbf/ft
Overall bearing capacity of reinforcements	=	0.00	lbf/ft

Check for slip:

Resisting horizontal force H_{res} = 13709.39 lbf/ft

Active horiz. force H_{act} = 5121.75 lbf/ft

Factor of safety = 2.68 > 1.50

Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength

Tension strength R_t = 701.60 lbf/ft

Force in reinforcement F_x = 335.89 lbf/ft

Safety factor = 2.09 > 1.50

Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance

Pull out resistance T_p = 3673.11 lbf/ft

Force in reinforcement F_x = 335.89 lbf/ft

Safety factor = 10.94 > 1.50

Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength

Connection strength R_{con} = 619.55 lbf/ft

Force in reinforcement F_x = 335.89 lbf/ft

Safety factor = 1.84 > 1.50

Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 15' upper wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	8	0.13
2	Block 28 PC	1	0.13
3	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
1	Miragrid 5XT	Miragrid 5XT	- - - - - - -	4700.00	2806.39	2478.18

1. Miragrid 5XT

Reinforcement details

Short-term char. strength	T_{ult}	=	4700.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	2806.39	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	2478.18	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 5XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 10.00 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 5XT	10.00	
2	Yes	Miragrid 5XT	10.00	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
3	Yes	Miragrid 5XT	10.00	
4	Yes	Miragrid 5XT	10.00	
5	Yes	Miragrid 5XT	10.00	
6	Yes	Miragrid 5XT	10.00	
7	Yes	Miragrid 5XT	10.00	
8	Yes	Miragrid 5XT	10.00	
9	Yes	Miragrid 5XT	10.00	
10	No			

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

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leveling pad 1

Unit weight :	γ =	110.0 pcf
Stress-state :	effective	
Angle of internal friction :	φ_{ef} =	40.00 °
Cohesion of soil :	c_{ef} =	0.0 psf
Angle of friction struc.-soil :	δ =	26.70 °
Saturated unit weight :	γ_{sat} =	115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill

Soil thickness in front of structure	h =	1.50 ft
Soil slope in front of structure	β =	-10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-7.81	17515.7	7.99	1.000
Active pressure	2805.7	-5.45	2006.5	13.41	1.000
townhomes	110.9	-12.82	77.7	13.41	1.000
Weight - wall	0.0	-7.33	4104.2	1.75	1.000
townhomes	0.0	-12.00	3475.2	12.52	1.000

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Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability

Resisting moment M_{res} = 218565.0 lbfft/ft
Overturning moment M_{ovr} = 16726.1 lbfft/ft

Safety factor = 13.07 > 1.50
Wall for overturning is SATISFACTORY

Check for slip

Resisting horizontal force H_{res} = 20538.41 lbf/ft
Active horizontal force H_{act} = 2916.65 lbf/ft

Safety factor = 7.04 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-34233.2	27179.28	2916.65	0.000	2203.7

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-34233.2	27179.28	2916.65

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification

Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity

Max. stress at footing bottom σ = 2203.7 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 2.72 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

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Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-7.33	4074.2	-0.58	1.000
Active pressure	2765.1	-5.50	2004.2	10.00	1.000
townhomes	782.0	-11.98	547.6	10.00	1.000
Weight - reinforced soil	0.0	-7.49	16542.9	5.33	1.000
townhomes	0.0	-12.00	1376.8	9.65	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 20471.53 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 15469.60 lbf/ft
Wall resistance = 3418.64 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 18888.24 lbf/ft
Active horiz. force H_{act} = 3547.17 lbf/ft

Factor of safety = 5.32 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 701.60 lbf/ft
Force in reinforcement F_x = 295.60 lbf/ft

Safety factor = 2.37 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 5559.35 lbf/ft
Force in reinforcement F_x = 295.60 lbf/ft

Safety factor = 18.81 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 619.55 lbf/ft
Force in reinforcement F_x = 295.60 lbf/ft

Safety factor = 2.10 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1950.00		10.00	2.00	3.00

No.	Name
1	townhomes

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-7.81	17515.7	7.99	1.000
Earthquake - soil wedge	3503.1	-7.81	0.0	7.99	1.000
Active pressure	2805.7	-5.45	2006.5	13.41	1.000
Earthq.- act.pressure	1906.6	-10.59	1336.7	13.41	1.000
townhomes	110.9	-12.82	77.7	13.41	1.000
Weight - wall	0.0	-7.33	4104.2	1.75	1.000
Earthq.- constr.	820.8	-7.33	0.0	1.75	1.000
townhomes	0.0	-12.00	3475.2	12.52	1.000

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Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability

Resisting moment M_{res} = 236489.6 lbfft/ft
Overturning moment M_{ovr} = 70296.8 lbfft/ft

Safety factor = 3.36 > 1.50
Wall for overturning is SATISFACTORY

Check for slip

Resisting horizontal force H_{res} = 21548.52 lbf/ft
Active horizontal force H_{act} = 9147.25 lbf/ft

Safety factor = 2.36 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	9655.9	28516.00	9147.25	0.027	2446.4

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	9655.9	28516.00	9147.25

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification

Max. eccentricity of normal force e = 0.027
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity

Max. stress at footing bottom σ = 2446.4 psf
Allowable bearing capacity of foundation soil R_d = 5000.0 psf

Safety factor = 2.04 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

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Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-7.33	4074.2	-0.58	1.000
Earthq.- constr.	814.8	-7.33	0.0	-0.58	1.000
Active pressure	2765.1	-5.50	2004.2	10.00	1.000
Earthq.- act.pressure	1945.2	-10.57	1366.8	10.00	1.000
townhomes	782.0	-11.98	547.6	10.00	1.000
Weight - reinforced soil	0.0	-7.49	16542.9	5.33	1.000
Earthquake - soil wedge	3295.5	-7.49	0.0	5.33	1.000
townhomes	0.0	-12.00	1376.8	9.65	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 21838.30 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 16502.42 lbf/ft
Wall resistance = 3418.64 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 19921.06 lbf/ft
Active horiz. force H_{act} = 5492.41 lbf/ft

Factor of safety = 3.63 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 701.60 lbf/ft
Force in reinforcement F_x = 299.87 lbf/ft

Safety factor = 2.34 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 5559.35 lbf/ft
Force in reinforcement F_x = 299.87 lbf/ft

Safety factor = 18.54 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 619.55 lbf/ft
Force in reinforcement F_x = 299.87 lbf/ft

Safety factor = 2.07 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 9' lower wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	5	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
2	Miragrid 8XT	Miragrid 8XT	- - - - - - - - - -	7600.00	4537.99	4007.27

2. Miragrid 8XT

Reinforcement details

Short-term char. strength	T_{ult}	=	7600.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	4537.99	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	4007.27	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 8XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 11.00 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 8XT	11.00	
2	Yes	Miragrid 8XT	11.00	
3	Yes	Miragrid 8XT	11.00	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
4	Yes	Miragrid 8XT	11.00	
5	Yes	Miragrid 8XT	11.00	
6	No			

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

leveling pad 1

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 40.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 26.70 °

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Saturated unit weight : γ_{sat} = 115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1850.00		3.00	9.25	1.50

No.	Name
1	upper wall

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure h = 1.50 ft
Soil slope in front of structure β = -10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-4.87	11856.1	8.23	1.000
Active pressure	1125.0	-3.33	787.8	13.87	1.000
Weight - wall	0.0	-4.33	2424.2	1.48	1.000
upper wall	0.0	-7.50	17112.5	8.71	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment M_{res} = 261166.6 lbfft/ft
Overturning moment M_{ovr} = 3750.1 lbfft/ft

Safety factor = 69.64 > 1.50

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Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force H_{res} = 21406.38 lbf/ft
Active horizontal force H_{act} = 1125.04 lbf/ft

Safety factor = 19.03 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-42879.8	32180.51	1125.04	0.000	2413.5

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-42879.8	32180.51	1125.04

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2413.5 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 2.49 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-4.33	2396.2	-0.85	1.000
Active pressure	1124.8	-3.33	787.6	11.00	1.000
upper wall	0.0	-10.00	0.0	11.00	1.000
Weight - reinforced soil	0.0	-4.79	11423.1	5.74	1.000
upper wall	0.0	-7.50	17101.6	6.38	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °

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Overall normal force acting on reinforcement = 29312.28 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 19498.44 lbf/ft
Wall resistance = 2010.68 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 21509.13 lbf/ft
Active horiz. force H_{act} = 1124.82 lbf/ft

Factor of safety = 19.12 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 1134.50 lbf/ft
Force in reinforcement F_x = 419.67 lbf/ft

Safety factor = 2.70 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 3278.66 lbf/ft
Force in reinforcement F_x = 419.67 lbf/ft

Safety factor = 7.81 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 1001.82 lbf/ft
Force in reinforcement F_x = 419.67 lbf/ft

Safety factor = 2.39 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

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Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1850.00		3.00	9.25	1.50

No.	Name
1	upper wall

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-4.87	11856.1	8.23	1.000
Earthquake - soil wedge	2371.2	-4.87	0.0	8.23	1.000
Active pressure	1125.0	-3.33	787.8	13.87	1.000
Earthq.- act.pressure	718.6	-6.67	503.2	13.87	1.000
Weight - wall	0.0	-4.33	2424.2	1.48	1.000
Earthq.- constr.	484.8	-4.33	0.0	1.48	1.000
upper wall	0.0	-7.50	17112.5	8.71	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment $M_{res} = 268146.4$ lbfft/ft
Overturning moment $M_{ovr} = 22196.2$ lbfft/ft

Safety factor = 12.08 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force $H_{res} = 21741.10$ lbf/ft
Active horizontal force $H_{act} = 4699.71$ lbf/ft

Safety factor = 4.63 > 1.50
Wall for slip is SATISFACTORY

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Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-28059.0	32683.69	4699.71	0.000	2451.3

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-28059.0	32683.69	4699.71

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification

Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity

Max. stress at footing bottom σ = 2451.3 psf
Allowable bearing capacity of foundation soil R_d = 5000.0 psf

Safety factor = 2.04 > 2.00

Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-4.33	2396.2	-0.85	1.000
Earthq.- constr.	479.2	-4.33	0.0	-0.85	1.000
Active pressure	1124.8	-3.33	787.6	11.00	1.000
Earthq.- act.pressure	718.5	-6.67	503.1	11.00	1.000
upper wall	0.0	-10.00	0.0	11.00	1.000
Weight - reinforced soil	0.0	-4.79	11423.1	5.74	1.000
Earthquake - soil wedge	2271.5	-4.79	0.0	5.74	1.000
upper wall	0.0	-7.50	17101.6	6.38	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 29815.35 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 19833.09 lbf/ft
Wall resistance = 2010.68 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

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Check for slip:
Resisting horizontal force H_{res} = 21843.77 lbf/ft
Active horiz. force H_{act} = 1843.29 lbf/ft

Factor of safety = 11.85 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 1134.50 lbf/ft
Force in reinforcement F_x = 423.60 lbf/ft

Safety factor = 2.68 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 3278.66 lbf/ft
Force in reinforcement F_x = 423.60 lbf/ft

Safety factor = 7.74 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 1001.82 lbf/ft
Force in reinforcement F_x = 423.60 lbf/ft

Safety factor = 2.37 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 10'-6 upper wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	6	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
2	Miragrid 8XT	Miragrid 8XT	- - - - - - - - - -	7600.00	4537.99	4007.27

2. Miragrid 8XT

Reinforcement details

Short-term char. strength	T_{ult}	=	7600.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	4537.99	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	4007.27	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 8XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 12.00 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 8XT	12.00	
2	Yes	Miragrid 8XT	12.00	
3	Yes	Miragrid 8XT	12.00	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
4	Yes	Miragrid 8XT	12.00	
5	Yes	Miragrid 8XT	12.00	
6	Yes	Miragrid 8XT	12.00	
7	Yes	Miragrid 8XT	12.00	

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

leveling pad 1

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 40.00 °
Cohesion of soil : c_{ef} = 0.0 psf

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Angle of friction struc.-soil : δ = 26.70 °
Saturated unit weight : γ_{sat} = 115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1850.00		3.00	9.25	1.50

No.	Name
1	upper wall

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure h = 1.50 ft
Soil slope in front of structure β = -10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-5.65	14995.3	8.82	1.000
Active pressure	1487.9	-3.83	1041.8	15.14	1.000
Weight - wall	0.0	-5.08	2844.2	1.55	1.000
upper wall	0.0	-9.00	17112.5	8.85	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment M_{res} = 303888.7 lbfft/ft
Overturning moment M_{ovr} = 5703.5 lbfft/ft

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Safety factor = 53.28 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force H_{res} = 23942.94 lbf/ft
Active horizontal force H_{act} = 1487.87 lbf/ft

Safety factor = 16.09 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-40230.0	35993.75	1487.87	0.000	2511.2

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-40230.0	35993.75	1487.87

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2511.2 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 2.39 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-5.08	2815.5	-0.78	1.000
Active pressure	1487.6	-3.83	1041.6	12.00	1.000
Weight - reinforced soil	0.0	-5.54	14355.0	6.27	1.000
upper wall	0.0	-9.00	17112.5	6.52	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 32509.16 lbf/ft

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Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 21625.00 lbf/ft
Wall resistance = 2362.51 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 23987.51 lbf/ft
Active horiz. force H_{act} = 1487.61 lbf/ft

Factor of safety = 16.12 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 1134.50 lbf/ft
Force in reinforcement F_x = 432.55 lbf/ft

Safety factor = 2.62 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 4144.80 lbf/ft
Force in reinforcement F_x = 432.55 lbf/ft

Safety factor = 9.58 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 1001.82 lbf/ft
Force in reinforcement F_x = 432.55 lbf/ft

Safety factor = 2.32 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

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Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1850.00		3.00	9.25	1.50

No.	Name
1	upper wall

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-5.65	14995.3	8.82	1.000
Earthquake - soil wedge	2999.1	-5.65	0.0	8.82	1.000
Active pressure	1487.9	-3.83	1041.8	15.14	1.000
Earthq.- act.pressure	950.4	-7.67	665.5	15.14	1.000
Weight - wall	0.0	-5.08	2844.2	1.55	1.000
Earthq.- constr.	568.8	-5.08	0.0	1.55	1.000
upper wall	0.0	-9.00	17112.5	8.85	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment $M_{res} = 313964.0$ lbfft/ft
Overturning moment $M_{ovr} = 32816.0$ lbfft/ft

Safety factor = 9.57 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force $H_{res} = 24385.60$ lbf/ft
Active horizontal force $H_{act} = 6006.12$ lbf/ft

Safety factor = 4.06 > 1.50
Wall for slip is SATISFACTORY

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Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-18423.7	36659.20	6006.12	0.000	2557.6

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-18423.7	36659.20	6006.12

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2557.6 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-5.08	2815.5	-0.78	1.000
Earthq.- constr.	563.1	-5.08	0.0	-0.78	1.000
Active pressure	1487.6	-3.83	1041.6	12.00	1.000
Earthq.- act.pressure	950.2	-7.67	665.3	12.00	1.000
Weight - reinforced soil	0.0	-5.54	14355.0	6.27	1.000
Earthquake - soil wedge	2857.9	-5.54	0.0	6.27	1.000
upper wall	0.0	-9.00	17112.5	6.52	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 33174.49 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 22067.58 lbf/ft
Wall resistance = 2362.51 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

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Check for slip:

Resisting horizontal force H_{res} = 24430.09 lbf/ft

Active horiz. force H_{act} = 2437.81 lbf/ft

Factor of safety = 10.02 > 1.50

Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength

Tension strength R_t = 1134.50 lbf/ft

Force in reinforcement F_x = 436.48 lbf/ft

Safety factor = 2.60 > 1.50

Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance

Pull out resistance T_p = 4144.80 lbf/ft

Force in reinforcement F_x = 436.48 lbf/ft

Safety factor = 9.50 > 1.50

Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength

Connection strength R_{con} = 1001.82 lbf/ft

Force in reinforcement F_x = 436.48 lbf/ft

Safety factor = 2.30 > 1.50

Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 12' lower wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	7	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
2	Miragrid 8XT	Miragrid 8XT	- - - - - - - - - -	7600.00	4537.99	4007.27

2. Miragrid 8XT

Reinforcement details

Short-term char. strength	T_{ult}	=	7600.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	4537.99	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	4007.27	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 8XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 14.00 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 8XT	14.00	
2	Yes	Miragrid 8XT	14.00	
3	Yes	Miragrid 8XT	14.00	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
4	Yes	Miragrid 8XT	14.00	
5	Yes	Miragrid 8XT	14.00	
6	Yes	Miragrid 8XT	14.00	
7	Yes	Miragrid 8XT	14.00	
8	No			

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

leveling pad 1

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 40.00 °

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Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 26.70 °
Saturated unit weight : γ_{sat} = 115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1850.00		3.00	9.25	1.50

No.	Name
1	upper wall

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure h = 1.50 ft
Soil slope in front of structure β = -10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-6.40	19798.3	9.88	1.000
Active pressure	1901.3	-4.33	1331.3	17.14	1.000
Weight - wall	0.0	-5.83	3264.2	1.62	1.000
upper wall	0.0	-10.50	17112.5	8.98	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment M_{res} = 377417.1 lbfft/ft
Overturning moment M_{ovr} = 8239.1 lbfft/ft

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Safety factor = 45.81 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force H_{res} = 27609.85 lbf/ft
Active horizontal force H_{act} = 1901.32 lbf/ft

Safety factor = 14.52 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-30210.3	41506.26	1901.32	0.000	2541.2

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-30210.3	41506.26	1901.32

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2541.2 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 2.36 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-5.83	3235.0	-0.72	1.000
Active pressure	1901.0	-4.33	1331.1	14.00	1.000
Weight - reinforced soil	0.0	-6.30	19024.6	7.31	1.000
upper wall	0.0	-10.50	17112.5	6.65	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °

Overall normal force acting on reinforcement = 37468.25 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 24923.78 lbf/ft
Wall resistance = 2714.47 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

Check for slip:
Resisting horizontal force H_{res} = 27638.24 lbf/ft
Active horiz. force H_{act} = 1901.03 lbf/ft

Factor of safety = 14.54 > 1.50
Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength
Tension strength R_t = 1134.50 lbf/ft
Force in reinforcement F_x = 445.42 lbf/ft

Safety factor = 2.55 > 1.50
Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance
Pull out resistance T_p = 5519.92 lbf/ft
Force in reinforcement F_x = 445.42 lbf/ft

Safety factor = 12.39 > 1.50
Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength
Connection strength R_{con} = 1001.82 lbf/ft
Force in reinforcement F_x = 445.42 lbf/ft

Safety factor = 2.25 > 1.50
Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

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Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1850.00		3.00	9.25	1.50

No.	Name
1	upper wall

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-6.40	19798.3	9.88	1.000
Earthquake - soil wedge	3959.7	-6.40	0.0	9.88	1.000
Active pressure	1901.3	-4.33	1331.3	17.14	1.000
Earthq.- act.pressure	1214.5	-8.67	850.4	17.14	1.000
Weight - wall	0.0	-5.83	3264.2	1.62	1.000
Earthq.- constr.	652.8	-5.83	0.0	1.62	1.000
upper wall	0.0	-10.50	17112.5	8.98	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment $M_{res} = 391992.9$ lbfft/ft
Overturning moment $M_{ovr} = 47913.6$ lbfft/ft

Safety factor = 8.18 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force $H_{res} = 28175.51$ lbf/ft
Active horizontal force $H_{act} = 7728.27$ lbf/ft

Safety factor = 3.65 > 1.50
Wall for slip is SATISFACTORY

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Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	1833.2	42356.63	7728.27	0.003	2607.1

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	1833.2	42356.63	7728.27

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.003
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2607.1 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-5.83	3235.0	-0.72	1.000
Earthq.- constr.	647.0	-5.83	0.0	-0.72	1.000
Active pressure	1901.0	-4.33	1331.1	14.00	1.000
Earthq.- act.pressure	1214.3	-8.67	850.2	14.00	1.000
Weight - reinforced soil	0.0	-6.30	19024.6	7.31	1.000
Earthquake - soil wedge	3791.8	-6.30	0.0	7.31	1.000
upper wall	0.0	-10.50	17112.5	6.65	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 38318.50 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 25489.35 lbf/ft
Wall resistance = 2714.47 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

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Check for slip:

Resisting horizontal force H_{res} = 28203.82 lbf/ft

Active horiz. force H_{act} = 3115.30 lbf/ft

Factor of safety = 9.05 > 1.50

Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength

Tension strength R_t = 1134.50 lbf/ft

Force in reinforcement F_x = 449.36 lbf/ft

Safety factor = 2.52 > 1.50

Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance

Pull out resistance T_p = 5519.92 lbf/ft

Force in reinforcement F_x = 449.36 lbf/ft

Safety factor = 12.28 > 1.50

Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength

Connection strength R_{con} = 1001.82 lbf/ft

Force in reinforcement F_x = 449.36 lbf/ft

Safety factor = 2.23 > 1.50

Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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Analysis of Redi Rock wall

Input data (Construction stage 1 - standard)

Project : GCD Shoreline
Description : 13'-6 upper wall
Customer : GCD
Date : 7/31/2025

Settings

USA - Safety factor

Wall analysis

Verification methodology :	Safety factors (ASD)
Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00

Safety factors			
Permanent design situation			
Safety factor for overturning :	SF_o =	1.50	[–]
Safety factor for sliding resistance :	SF_s =	1.50	[–]
Safety factor for bearing capacity :	SF_b =	2.00	[–]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50	[–]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50	[–]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50	[–]
Safety factor for connection strength :	SF_{con} =	1.50	[–]

Blocks

No.	Description	Block height h [in]	Block width w [in]	Unit weight γ [pcf]
1	Block 28 PC	18.00	28.00	120.00
2	Top block 28	18.00	28.00	120.00

No.	Description	Shear bearing capacity of joint F_{min} [lbf/ft]	Max. shear strength F_{max} [lbf/ft]	Block friction f [°]
1	Block 28 PC	6061.00	11276.00	44.00
2	Top block 28	6061.00	11276.00	44.00

Setbacks

No.	Setback s [in]
1	0.000
2	0.033
3	0.135

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No.	Setback s [in]
6	0.269

Geometry

No. group	Description	Count	Setback s [in]
1	Block 28 PC	8	0.13
2	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.50 ft
Lower setback a_2 = 0.50 ft
Height h = 1.00 ft
Width b = 3.33 ft

Material

Soil creating foundation - leveling pad 1

Types of reinforcements

No.	Name	Type of reinforcement	Line type	Tensile strength		
				T_{ult} [lbf/ft]	R_t [lbf/ft]	R_{con} [lbf/ft]
2	Miragrid 8XT	Miragrid 8XT	- - - - - - - - - -	7600.00	4537.99	4007.27

2. Miragrid 8XT

Reinforcement details

Short-term char. strength	T_{ult}	=	7600.00	lbf/ft
Creep red. factor	RF_{CR}	=	1.45	
Durability red. factor	RF_D	=	1.10	
Installation damage red. factor	RF_{ID}	=	1.05	
Long-term design strength	R_t	=	4537.99	lbf/ft
Coefficient of direct slip along reinforcement	C_{ds}	=	0.80	
Coefficient of interaction of soil and geo-reinforcement	C_i	=	0.80	
Scale correction factor	α	=	1.0	
Long-term strength reduction factor	CR_{cr}	=	0.580	
Calculation of long-term connection strength	R_{con}	=	4007.27	lbf/ft

Reinforcements

Input mode : 1 reinforcement type
Reinf. installation : in every row of blocks (50%)
Type of reinforcement : Miragrid 8XT
Top reinforcement : straight (25%)
Reinforcement geometry : identical length of reinforcements
Length of reinforcement l = 15.00 ft

Reinforcements

No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
1	Yes	Miragrid 8XT	15.00	
2	Yes	Miragrid 8XT	15.00	
3	Yes	Miragrid 8XT	15.00	

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No.	Consider	Name	Length of reinforcement l [ft]	End pt. coordinate l_k [ft]
4	Yes	Miragrid 8XT	15.00	
5	Yes	Miragrid 8XT	15.00	
6	Yes	Miragrid 8XT	15.00	
7	Yes	Miragrid 8XT	15.00	
8	Yes	Miragrid 8XT	15.00	
9	No			

Basic soil parameters

No.	Name	Pattern	φ_{ef} [°]	c_{ef} [psf]	γ [pcf]	γ_{su} [pcf]	δ [°]
1	back fill		35.00	0.0	110.00	57.50	35.00
2	Well graded gravel (GW), medium dense		38.50	0.0	133.00	70.50	35.00
3	leveling pad		35.00	0.0	150.00	97.50	25.00
4	leveling pad 1		40.00	0.0	110.00	52.50	26.70

All soils are considered as cohesionless for at rest pressure analysis.

Soil parameters

back fill

Unit weight : γ = 110.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 120.0 pcf

Well graded gravel (GW), medium dense

Unit weight : γ = 133.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 35.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

leveling pad

Unit weight : γ = 150.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 35.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 160.0 pcf

leveling pad 1

Unit weight : γ = 110.0 pcf

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Stress-state : effective
Angle of internal friction : φ_{ef} = 40.00 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 26.70 °
Saturated unit weight : γ_{sat} = 115.0 pcf

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	Yes		permanent	1850.00		3.00	9.25	1.50

No.	Name
1	upper wall

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure h = 1.50 ft
Soil slope in front of structure β = -10.00 °

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 1 - standard)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-7.16	23714.4	10.45	1.000
Active pressure	2365.4	-4.83	1656.3	18.27	1.000
Weight - wall	0.0	-6.58	3684.2	1.69	1.000
upper wall	0.0	-12.00	17112.5	9.12	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability

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Resisting moment M_{res} = 440309.1 lbfft/ft
Overturning moment M_{ovr} = 11432.8 lbfft/ft

Safety factor = 38.51 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force H_{res} = 34886.98 lbf/ft
Active horizontal force H_{act} = 2365.40 lbf/ft

Safety factor = 14.75 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 1 - standard)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	-28759.7	46167.31	2365.40	0.000	2663.5

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	-28759.7	46167.31	2365.40

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.000
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2663.5 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Safety factor = 2.25 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Verification of slip on georeinforcement No. 1 (Construction stage 1 - standard)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-6.58	3654.5	-0.65	1.000
Active pressure	2318.8	-4.92	1649.2	15.00	1.000
Weight - reinforced soil	0.0	-7.04	22737.2	7.84	1.000
upper wall	0.0	-12.00	17112.5	6.78	1.000

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Verification against slip along geotextile No.: 1

Inclination of slip surface	=	90.00	°
Overall normal force acting on reinforcement	=	41498.91	lbf/ft
Coefficient of reduction of slip along geo-textile	=	0.95	
Resistance along geo-reinforcement	=	27604.96	lbf/ft
Wall resistance	=	3066.52	lbf/ft
Overall bearing capacity of reinforcements	=	0.00	lbf/ft

Check for slip:

Resisting horizontal force H_{res} = 30671.48 lbf/ft

Active horiz. force H_{act} = 2318.83 lbf/ft

Factor of safety = 13.23 > 1.50

Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 1 - standard)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength

Tension strength R_t = 1134.50 lbf/ft

Force in reinforcement F_x = 458.30 lbf/ft

Safety factor = 2.48 > 1.50

Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance

Pull out resistance T_p = 6624.30 lbf/ft

Force in reinforcement F_x = 458.30 lbf/ft

Safety factor = 14.45 > 1.50

Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength

Connection strength R_{con} = 1001.82 lbf/ft

Force in reinforcement F_x = 458.30 lbf/ft

Safety factor = 2.19 > 1.50

Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

Input data (Construction stage 2 - seismic)

Geological profile and assigned soils

No.	Thickness of layer t [ft]	Depth z [ft]	Assigned soil	Pattern
1	13.50	0.00 .. 13.50	back fill	
2	-	13.50 .. ∞	Well graded gravel (GW), medium dense	

Terrain profile

Terrain behind construction has the slope 1: 10.00 (slope angle is 5.71 °).
Embankment height is 1.00 ft, embankment length is 10.00 ft.

Water influence

Ground water table is located below the structure.

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Input surface surcharges

No.	Surcharge new	Surcharge change	Action	Mag.1 [lbf/ft²]	Mag.2 [lbf/ft²]	Ord.x x [ft]	Length l [ft]	Depth z [ft]
1	No	No	permanent	1850.00		3.00	9.25	1.50

No.	Name
1	upper wall

Resistance on front face of the structure

Resistance on front face of the structure: not considered
Soil on front face of the structure - back fill
Soil thickness in front of structure $h = 1.50$ ft
Soil slope in front of structure $\beta = -10.00$ °

Earthquake

Factor of horizontal acceleration $K_h = 0.2000$
Factor of vertical acceleration $K_v = 0.0000$

Water below the GWT is restricted.

Settings of the stage of construction

Design situation : permanent
Reduction of soil/soil friction angle : do not reduce

Verification No. 1 (Construction stage 2 - seismic)

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - reinforced soil	0.0	-7.16	23714.4	10.45	1.000
Earthquake - soil wedge	4742.9	-7.16	0.0	10.45	1.000
Active pressure	2365.4	-4.83	1656.3	18.27	1.000
Earthq.- act.pressure	1510.9	-9.67	1057.9	18.27	1.000
Weight - wall	0.0	-6.58	3684.2	1.69	1.000
Earthq.- constr.	736.8	-6.58	0.0	1.69	1.000
upper wall	0.0	-12.00	17112.5	9.12	1.000

Verification of complete wall

Place of verification : bottom of blocks

Check for overturning stability
Resisting moment $M_{res} = 459642.8$ lbfft/ft
Overturning moment $M_{ovr} = 64830.4$ lbfft/ft

Safety factor = 7.09 > 1.50
Wall for overturning is SATISFACTORY

Check for slip
Resisting horizontal force $H_{res} = 35686.42$ lbf/ft
Active horizontal force $H_{act} = 9355.99$ lbf/ft

Safety factor = 3.81 > 1.50
Wall for slip is SATISFACTORY

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Overall check - WALL is SATISFACTORY

Bearing capacity of foundation soil (Construction stage 2 - seismic)

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [–]	Stress [psf]
1	14473.1	47225.24	9355.99	0.018	2824.4

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	14473.1	47225.24	9355.99

Verification of foundation soil

Place of verification : bottom of blocks
Stress in the footing bottom : rectangle

Eccentricity verification
Max. eccentricity of normal force e = 0.018
Maximum allowable eccentricity e_{alw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity
Max. stress at footing bottom σ = 2824.4 psf
Allowable bearing capacity of foundation soil R_d = 6000.0 psf

Verification of slip on georeinforcement No. 1 (Construction stage 2 - seismic)

Forces acting on construction (verification of reinforcement No.: 1)

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-6.58	3654.5	-0.65	1.000
Earthq.- constr.	730.9	-6.58	0.0	-0.65	1.000
Active pressure	2318.8	-4.92	1649.2	15.00	1.000
Earthq.- act.pressure	1551.9	-9.61	1087.4	15.00	1.000
Weight - reinforced soil	0.0	-7.04	22737.2	7.84	1.000
Earthquake - soil wedge	4534.3	-7.04	0.0	7.84	1.000
upper wall	0.0	-12.00	17112.5	6.78	1.000

Verification against slip along geotextile No.: 1

Inclination of slip surface = 90.00 °
Overall normal force acting on reinforcement = 42586.32 lbf/ft
Coefficient of reduction of slip along geo-textile = 0.95
Resistance along geo-reinforcement = 28328.30 lbf/ft
Wall resistance = 3066.52 lbf/ft
Overall bearing capacity of reinforcements = 0.00 lbf/ft

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Check for slip:

Resisting horizontal force H_{res} = 31394.82 lbf/ft

Active horiz. force H_{act} = 3870.73 lbf/ft

Factor of safety = 8.11 > 1.50

Slip along geotextile is SATISFACTORY

Calculation of internal stability No. 1 (Construction stage 2 - seismic)

Check for bearing capacity of reinforcement No.: 1

Check for tensile strength

Tension strength R_t = 1134.50 lbf/ft

Force in reinforcement F_x = 462.24 lbf/ft

Safety factor = 2.45 > 1.50

Reinforcement for tensile strength is SATISFACTORY

Check for pull out resistance

Pull out resistance T_p = 6624.30 lbf/ft

Force in reinforcement F_x = 462.24 lbf/ft

Safety factor = 14.33 > 1.50

Reinforcement for pull out resistance is SATISFACTORY

Verification of connection strength

Connection strength R_{con} = 1001.82 lbf/ft

Force in reinforcement F_x = 462.24 lbf/ft

Safety factor = 2.17 > 1.50

Connection strength is SATISFACTORY

Overall verification - reinforcement is SATISFACTORY

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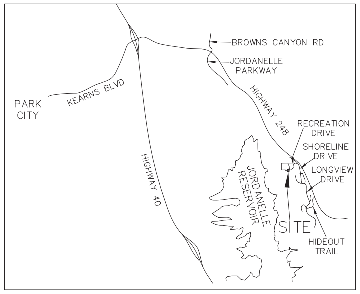
Item # 3.

SHORELINE PHASE 4, PLAT A

A PLANNED UNIT DEVELOPMENT

LOCATED IN THE NORTHEAST & SOUTHEAST QUARTERS
OF SECTION 17, T2S, R5E, SLB&M



VICINITY MAP

GRAPHIC SCALE

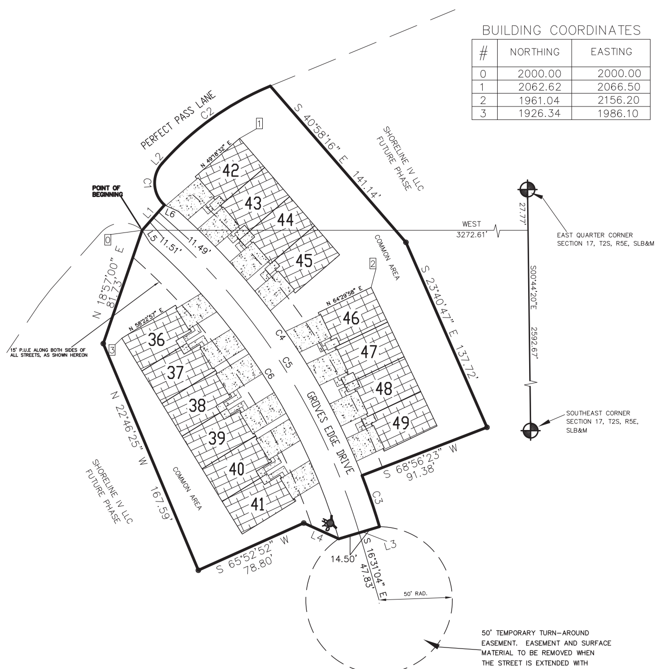
(IN FEET)
1 inch = 40 ft.

LINE TABLE		
LINE	LENGTH	BEARING
L1	23.00'	N41°29'56"E
L2	0.69'	N41°25'00"E
L3	29.00'	S73°22'48"W
L4	26.24'	N65°44'37"W
L5	10.33'	N31°41'32"W
L6	10.34'	N65°26'26"W

CURVE TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD DISTANCE
C1	31.41'	20.00'	89°58'58"	N03°30'04"W	28.28'
C2	90.99'	200.00'	26°03'58"	N54°31'55"E	90.21'
C3	36.89'	464.50'	4°33'00"	S18°53'42"E	36.88'
C4	221.57'	464.50'	27°19'52"	N34°50'08"W	219.48'
C5	250.39'	450.00'	31°52'52"	N32°33'38"W	247.18'
C6	242.33'	435.50'	31°52'52"	N32°33'38"W	239.21'

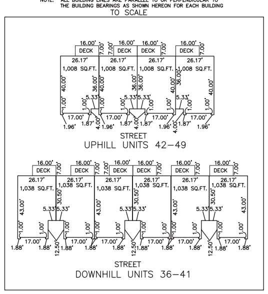
BUILDING COORDINATES		
#	NORTHING	EASTING
0	2000.00	2000.00
1	2062.62	2066.50
2	1961.04	2156.20
3	1926.34	1986.10

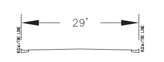
UNIT #	ADDRESS
36	11383 N. GROVES EDGE DRIVE
37	11375 N. GROVES EDGE DRIVE
38	11369 N. GROVES EDGE DRIVE
39	11363 N. GROVES EDGE DRIVE
40	11359 N. GROVES EDGE DRIVE
41	11355 N. GROVES EDGE DRIVE
42	11392 N. GROVES EDGE DRIVE
43	11386 N. GROVES EDGE DRIVE
44	11382 N. GROVES EDGE DRIVE
45	11376 N. GROVES EDGE DRIVE
46	11372 N. GROVES EDGE DRIVE
47	11366 N. GROVES EDGE DRIVE
48	11362 N. GROVES EDGE DRIVE
49	11356 N. GROVES EDGE DRIVE



BUILDING TYPICALS

NOTE: ALL BUILDING LINES ARE PARALLEL TO OR PERPENDICULAR TO THE BUILDING BEARINGS AS SHOWN HEREON FOR EACH BUILDING TO SCALE





29' ROAD CROSS SECTION - PUBLIC STREET

GENERAL NOTES:

1. ALL COMMON AREA IS TO BE CONSIDERED A DRAINAGE & PUBLIC UTILITY EASEMENT AND A SNOW STORAGE EASEMENT.
2. WITH THE VACATION OF PORTIONS OF THE PREVIOUS SHORELINE PHASE 2 C AND SHORELINE PHASE 2 A AMENDED PLATS, THE NEW STREETS AND EASEMENTS WILL BE SHOWN AS HEREON.
3. 6' WIDE TRAIL WILL BE DEDICATED TO THE MASTER H.O.A. ONCE COMPLETED, WITH ACCESS BY RESIDENTS OF HIDEOUT CANYON MASTER HOA AND WITH A PUBLIC EASEMENT/ACCESS GRANTED TO THE TOWN OF HIDEOUT.
4. ALL STREETS ARE PUBLIC AND DEDICATED TO THE TOWN OF HIDEOUT UNLESS OTHERWISE NOTED.
5. PARKING WILL ONLY BE ALLOWED DRIVEWAYS AND DESIGNATED PARKING AREAS.

STANDARD PLAT NOTES

1–PRIOR TO BUILDING PERMITS BEING ISSUED, SOIL AND/OR GEOTECHNICAL TESTING STUDIES MAY BE REQUIRED ON EACH BUILDING AS DETERMINED BY THE TOWN BUILDING OFFICIAL.
2–BUILDING PERMITS WILL NOT BE ISSUED UNTIL ALL REQUIRED IMPROVEMENTS HAVE BEEN INSTALLED PER TOWN STANDARDS AND ALL FEES INCLUDING IMPACT AND CONNECTION FEES ARE PAID.
3–NO TOWN MAINTENANCE SHALL BE PROVIDED FOR STREETS AND IMPROVEMENTS DESIGNATED AS "PRIVATE" ON THIS PLAT.
4–ALL COMMON AND PARKING AREAS, AS APPLICABLE, AND PRIVATE STREETS, ARE DEDICATED AS TOWN UTILITY EASEMENTS. THE TOWN OF HIDEOUT HAS THE RIGHT OF ACCESS THROUGH THESE EASEMENTS TO ACCESS, MAINTAIN, AND REPAIR TOWN UTILITIES. NO CHANGES TO TOPOGRAPHY, STRUCTURES, ABOVE OR BELOW GROUND ARE ALLOWED IN EASEMENTS WITHIN 10 FEET OF TOWN UTILITIES WITHOUT WRITTEN PERMISSION FROM THE TOWN OF HIDEOUT ENGINEER. ANY OBSTACLES ERECTED WITHIN THESE EASEMENTS WITHOUT WRITTEN PERMISSION WILL BE REMOVED AT THE CURRENT PROPERTY OWNER'S EXPENSE. ALL STORM DRAIN UTILITIES AND THEIR MAINTENANCE WITHIN PRIVATE PROPERTY SHALL BE THE RESPONSIBILITY OF PROPERTY OWNER. ALL SEWER LATERALS AND THEIR MAINTENANCE TO THE PUBLIC RIGHT–OF–WAY SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. ALL DRINKING WATER AND PRESSURIZED IRRIGATION SERVICES AND THEIR MAINTENANCE FROM THE WATER METER OR SERVICE VAULT SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
5–A GEOTECHNICAL REPORT HAS BEEN COMPLETED BY IGES DATED 01–16–24, WHICH ADDRESSES SOIL AND GROUNDWATER CONDITIONS, PROVIDES ENGINEERING DESIGN CRITERIA, AND RECOMMENDS MITIGATION MEASURES IF PROBLEMATIC CONDITIONS WERE ENCOUNTERED. THE CITY ASSUMES NO LIABILITY OR RESPONSIBILITY FOR ANY RELIANCE ON THE INFORMATION OR LACK THEREOF IN THE REPORT.
6– AGRICULTURAL USES, OPERATIONS, AND RIGHTS ARE ADJACENT TO OR NEAR THE PLAT AND LOTS. THE LOTS IN THIS PLAT ARE SUBJECT TO THE SIGHTS, SOUNDS, ODORS, NUISANCES, AND ASPECTS ASSOCIATED WITH AGRICULTURAL OPERATIONS, USES, AND RIGHTS. THESE USES AND OPERATIONS MAY OCCUR AT ALL TIMES OF THE DAY AND NIGHT INCLUDING WEEKENDS AND HOLIDAYS. THE TOWN IS NOT RESPONSIBLE OR LIABLE FOR THESE USES AND IMPACTS AND WILL NOT RESTRICT ANY GRANDFATHERED AGRICULTURAL USE FROM CONTINUING TO OCCUR LAWFULLY.
7– DRAINAGE ACROSS PROPERTY LINES SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON SITE OR DIRECTED TO AN APPROVED DRAINAGE FACILITY. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS, ACCORDING TO THE BUILDING CODE.

NOTES FOR PLATS WITH COMMON AREA

8–ALL OPEN SPACE, COMMON SPACE, AND TRAIL IMPROVEMENTS LOCATED HEREIN ARE TO BE INSTALLED BY OWNER AND MAINTAINED BY A HOMEOWNERS ASSOCIATION UNLESS SPECIFIED OTHERWISE ON EACH IMPROVEMENT.
9–LOTS/UNITS MAY BE SUBJECT TO ASSOCIATION BYLAWS, ARTICLES OF INCORPORATION AND CC&R'S."

SYMBOL LEGEND

- PRIVATE AREA
- LIMITED COMMON AREA (DRIVEWAYS, PORCHES, DECKS AND PATIOS)
- COMMON AREA (INCLUDES ALL AREA NOT DEFINED AS PRIVATE AREA OR LIMITED COMMON AREA) ALL COMMON AREA IS A PUBLIC UTILITY EASEMENT
- SET NEW REBAR & CAP (OR FOUND EXISTING REBAR & CAP) (NOTHING SET ALONG STREET R.O.W.)
- FOUND SECTION MONUMENT
- BUILDING COORDINATE
- NOTHING SET (NOTHING SET ALONG ROADWAYS)
- OFF-STREET PARKING

SURVEYOR'S CERTIFICATE

I, David F. Hunt, do hereby certify that I am a professional Land Surveyor and that I hold a license No. 5243543-2201 in accordance with Utah Code Title 58, Chapter 22 of the Professional Engineers and Land Surveyors Licensing Act. I further certify that, by authority of the owners, I have completed a survey of the property described on this subdivision plat in accordance with Section 17-23-17, have verified all measurements, have subdivided said tract of land into lots, streets, together with easements, and have placed monuments on the ground as represented on the plat. I also certify that I have filed with the Wasatch County Surveyor, pursuant to State Law, a map of the survey I completed.

BOUNDARY DESCRIPTION

BEGINNING AT A POINT LOCATED SOUTH 00°44'20" EAST ALONG THE SECTION LINE 27.77 FEET AND WEST 3272.61 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE NORTH 41°29'56" EAST 23.00 FEET; THENCE ALONG THE ARC OF A 20.00–FOOT RADIUS CURVE TO THE RIGHT 31.41 FEET (CHORD BEARS N 03°30'04" W 28.28 FEET); THENCE NORTH 41°25'00" EAST 0.69 FEET; THENCE ALONG THE ARC OF A 200.00–FOOT RADIUS CURVE TO THE RIGHT 90.99 FEET (CHORD BEARS N 54°31'55" E 90.21 FEET); THENCE SOUTH 40°58'16" EAST 141.14 FEET; THENCE SOUTH 23°40'47" EAST 137.72 FEET; THENCE SOUTH 68°56'23" WEST 91.38 FEET; THENCE ALONG THE ARC OF A 464.50–FOOT RADIUS CURVE TO THE LEFT 36.89 FEET (CHORD BEARS S 18°53'42" E 36.88 FEET); THENCE SOUTH 73°22'48" WEST 29.00 FEET; THENCE NORTH 65°44'37" WEST 26.24 FEET; THENCE SOUTH 65°52'52" WEST 78.80 FEET; THENCE NORTH 22°46'25" WEST 167.59 FEET; THENCE NORTH 18°57'00" EAST 81.73 FEET TO THE POINT OF BEGINNING.

AREA = 1.1905 ACRES

14 UNITS

09-10-25
DATE

SURVEYOR (see seal below)

BASIS OF BEARING:

SOUTH 00°44'20" EAST ALONG THE SECTION LINE FROM THE EAST QUARTER CORNER TO THE SOUTHEAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.

OWNER'S DEDICATION

The undersigned owner(s) of the above-described tract of land has/have caused the same to be subdivided into lots, parcels, and streets, together with easements and rights-of-way, to be hereafter known as:

SHORELINE PHASE 4, PLAT A1

and do hereby dedicate for the perpetual use of the public and Town of Hideout (Town) all parcels, lots, streets, easements, rights-of-way, and public amenities shown on this plat as intended for public or Town use. The undersigned owner(s), agents, successors, and assigns shall voluntarily defend, indemnify, and save harmless the Town against any easements or other encumbrance on a dedicated street, easement, or right-of-way that will interfere with the Town's use, maintenance, and operation of the street or utilities. The undersigned owner(s), agents, successors, and assigns also hereby convey any other easements, as shown and/or noted on this plat, to the parties indicated and for the purposes shown and/or noted hereon. The Town assumes no liability with respect to the creation of this subdivision, the alteration of the ground surface, vegetation, drainage, or surface or sub-surface water flows within this subdivision, and the development activity within this subdivision.

In witness whereof I have set forth my hand this___ day of _____ , 20__.___

Signature Print Name Title & Entity

Signature Print Name Title & Entity

OWNER'S ACKNOWLEDGMENT

STATE OF UTAH } S.S.
County of Utah

On this___day of _____, 20__, personally appeared before me _____________________, who being by me duly sworn, did prove to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument, and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies).

WITNESS my hand and official seal.

Notary Public Full Name:_____________________

APPROVAL BY LEGISLATIVE BODY

The Town of Hideout City Council, County of Wasatch, approves this subdivision subject to the conditions and restrictions stated hereon, and hereby accepts the dedication of all streets, easements, and other parcels of land intended for the public purpose of the perpetual use of the public.

Mayor Date

RECORDER'S SEAL

PREPARED BY:

LEVEL OF FOCUS, INC
1334 East 1150 South
Spanish Fork, Utah 84660
(801) 319-5441

OWNERS

GENERAL CONSTRUCTION AND DEVELOPMENT, INC.
3214 NORTH UNIVERSITY AVE.
SUITE #605
PROVO, UT 84604

PLANNING MANAGER
Approved on this ______ day of ______________, 20____
PLANNING MANAGER

TOWN ENGINEER
Approved on this ___day of _______________, 20____
TOWN ENGINEER

WASATCH CO. FIRE DISTRICT
Approved on this ______ day of _______________, 20____
FIRE CHIEF

TOWN ATTORNEY
Approved on this ____day of _______________, 20____
TOWN ATTORNEY

COUNTY SURVEYOR
Approved on this ______ day of _______________, 20____
COUNTY SURVEYOR

SURVEYOR'S SEAL
PROFESSIONAL LAND SURVEYOR
09-10-25
DAVID F. HUNT
LICENSE NO. 5243543-2201
STATE OF UTAH

COUNTY RECORDER
ENTRY # ______ DATE ______ TIME
FEE ______ BOOK ______ PAGE
FOR ______
BY ______
WASATCH COUNTY RECORDER

CLOSURE ERROR REPORT

BEGINNING AT A POINT LOCATED SOUTH 00°44'20" EAST ALONG THE SECTION LINE 27.77 FEET AND WEST 3272.61 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE NORTH 41°29'56" EAST 23.00 FEET; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE RIGHT 31.41 FEET (CHORD BEARS N 03°30'04" W 28.28 FEET); THENCE NORTH 41°25'00" EAST 0.69 FEET; THENCE ALONG THE ARC OF A 200.00-FOOT RADIUS CURVE TO THE RIGHT 90.99 FEET (CHORD BEARS N 54°31'55" E 90.21 FEET); THENCE SOUTH 40°58'16" EAST 141.14 FEET; THENCE SOUTH 23°40'47" EAST 137.72 FEET; THENCE SOUTH 68°56'23" WEST 91.38 FEET; THENCE ALONG THE ARC OF A 464.50-FOOT RADIUS CURVE TO THE LEFT 36.89 FEET (CHORD BEARS S 18°53'42" E 36.88 FEET); THENCE SOUTH 73°22'48" WEST 29.00 FEET; THENCE NORTH 65°44'37" WEST 26.24 FEET; THENCE SOUTH 65°52'52" WEST 78.80 FEET; THENCE NORTH 22°46'25" WEST 167.59 FEET; THENCE NORTH 18°57'00" EAST 81.73 FEET TO THE POINT OF BEGINNING.

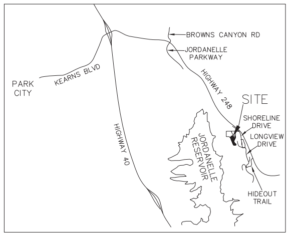
AREA = 1.1905 ACRES

ERROR OF CLOSURE = S 33°08'38" E 0.005'

SHORELINE PHASE 4 PRELIMINARY PLAT

A PLANNED UNIT DEVELOPMENT

LOCATED IN THE NORTHEAST & SOUTHEAST QUARTERS
OF SECTION 17, T2S, R5E, SLB&M



VICINITY MAP

GRAPHIC SCALE

(IN FEET)
1 inch = 120 ft.

LINE TABLE		
LINE	LENGTH	BEARING
L1	15.03	S24°49'12"E
L2	87.87	S21°00'21"E
L3	740.14	S26°09'01"W
L4	87.98	S30°20'39"E
L5	63.70	S22°19'01"E
L6	122.23	S57°15'04"E
L7	100.10	S71°52'02"E
L8	193.58	S01°12'03"W
L9	226.34	S81°26'17"W
L10	363.22	N86°31'55"W
L11	1745.25	N22°19'01"W
L12	90.74	N71°32'33"E
L13	12.09	S18°27'27"E
L14	29.00	N71°32'33"E
L15	39.57	N33°57'03"E
L16	13.16	N37°43'29"E
L17	51.39	N41°29'56"E
L18	23.00	N41°29'56"E
L19	136.42	N67°33'54"E
L20	70.12	S89°31'37"E
L21	23.00	N84°35'12"E
L22	14.67	S18°56'29"E
L23	97.00	S63°51'00"E
L24	87.87	N21°00'21"W
L25	15.04	N17°12'15"W
L26	27.00	N68°59'39"E
L27	122.38'	N18°27'27"W
L28	177.35'	N22°19'01"W
L29	140.11'	N25°41'17"W
L30	313.79'	N21°37'21"W
L31	82.93'	S19°07'34"E
L32	52.34'	N22°19'01"W
L33	388.33'	N25°41'17"W
L34	61.00'	S64°18'43"W
L35	61.00'	N25°41'17"W
L36	61.00'	N64°18'43"E
L37	171.70'	S67°40'59"W
L38	9.89'	S48°30'04"E
L39	141.62'	S16°37'12"E
L40	156.87'	S29°16'50"E
L41	118.00'	S13°44'34"E
L42	55.84'	S46°52'11"E
L43	32.68'	S46°52'11"E
L44	87.98'	S30°20'39"E
L45	63.70'	S22°19'01"E
L46	61.23'	S57°15'04"E
L47	61.00'	S57°15'04"E
L48	58.50'	N32°44'56"E
L49	314.02'	S26°09'02"W
L50	177.41'	S65°06'10"E
L51	85.68'	S65°06'10"E
L52	61.00'	S24°53'50"W
L53	10.00'	S26°09'02"W
L54	190.05'	S26°09'00"W
L55	183.09'	S65°06'10"E
L56	48.31'	S22°16'43"E
L57	199.44'	S26°09'00"W
L58	131.57'	S63°51'00"E
L59	26.63'	S26°09'00"W
L60	102.88'	S21°00'21"E

STANDARD PLAT NOTES

1–PRIOR TO BUILDING PERMITS BEING ISSUED, SOIL AND/OR GEOTECHNICAL TESTING STUDIES MAY BE REQUIRED ON EACH BUILDING AS DETERMINED BY THE TOWN BUILDING OFFICIAL.
2–BUILDING PERMITS WILL NOT BE ISSUED UNTIL ALL REQUIRED IMPROVEMENTS HAVE BEEN INSTALLED PER TOWN STANDARDS AND ALL FEES INCLUDING IMPACT AND CONNECTION FEES ARE PAID.
3–NO TOWN MAINTENANCE SHALL BE PROVIDED FOR STREETS AND IMPROVEMENTS DESIGNATED AS "PRIVATE" ON THIS PLAT.
4–ALL COMMON AND PARKING AREAS, AS APPLICABLE, AND PRIVATE STREETS, ARE DEDICATED AS TOWN UTILITY EASEMENTS. THE TOWN OF HIDEOUT HAS THE RIGHT OF ACCESS THROUGH THESE EASEMENTS TO ACCESS, MAINTAIN, AND REPAIR TOWN UTILITIES. NO CHANGES TO TOPOGRAPHY, STRUCTURES, ABOVE OR BELOW GROUND ARE ALLOWED IN EASEMENTS WITHIN 10 FEET OF TOWN UTILITIES WITHOUT WRITTEN PERMISSION FROM THE TOWN OF HIDEOUT ENGINEER. ANY OBSTACLES ERECTED WITHIN THESE EASEMENTS WITHOUT WRITTEN PERMISSION WILL BE REMOVED AT THE CURRENT PROPERTY OWNER'S EXPENSE. ALL STORM DRAIN UTILITIES AND THEIR MAINTENANCE WITHIN PRIVATE PROPERTY SHALL BE THE RESPONSIBILITY OF PROPERTY OWNER. ALL SEWER LATERALS AND THEIR MAINTENANCE TO THE PUBLIC RIGHT–OF–WAY SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER. ALL DRINKING WATER AND PRESSURIZED IRRIGATION SERVICES AND THEIR MAINTENANCE FROM THE WATER METER OR SERVICE VAULT SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
5–A GEOTECHNICAL REPORT HAS BEEN COMPLETED BY IGES DATED 01–16–24, WHICH ADDRESSES SOIL AND GROUNDWATER CONDITIONS, PROVIDES ENGINEERING DESIGN CRITERIA, AND RECOMMENDS MITIGATION MEASURES IF PROBLEMATIC CONDITIONS WERE ENCOUNTERED. THE CITY ASSUMES NO LIABILITY OR RESPONSIBILITY FOR ANY RELIANCE ON THE INFORMATION OR LACK THEREOF IN THE REPORT.
6– AGRICULTURAL USES, OPERATIONS, AND RIGHTS ARE ADJACENT TO OR NEAR THE PLAT AND LOTS. THE LOTS IN THIS PLAT ARE SUBJECT TO THE SIGHTS, SOUNDS, ODORS, NUISANCES, AND ASPECTS ASSOCIATED WITH AGRICULTURAL OPERATIONS, USES, AND RIGHTS. THESE USES AND OPERATIONS MAY OCCUR AT ALL TIMES OF THE DAY AND NIGHT INCLUDING WEEKENDS AND HOLIDAYS. THE TOWN IS NOT RESPONSIBLE OR LIABLE FOR THESE USES AND IMPACTS AND WILL NOT RESTRICT ANY GRANDFATHERED AGRICULTURAL USE FROM CONTINUING TO OCCUR LAWFULLY.
7– DRAINAGE ACROSS PROPERTY LINES SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON SITE OR DIRECTED TO AN APPROVED DRAINAGE FACILITY. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS, ACCORDING TO THE BUILDING CODE.

NOTES FOR PLATS WITH COMMON AREA

8–ALL OPEN SPACE, COMMON SPACE, AND TRAIL IMPROVEMENTS LOCATED HEREIN ARE TO BE INSTALLED BY OWNER AND MAINTAINED BY A HOMEOWNERS ASSOCIATION UNLESS SPECIFIED OTHERWISE ON EACH IMPROVEMENT.
9–LOTS/UNITS MAY BE SUBJECT TO ASSOCIATION BYLAWS, ARTICLES OF INCORPORATION AND CC&R'S."

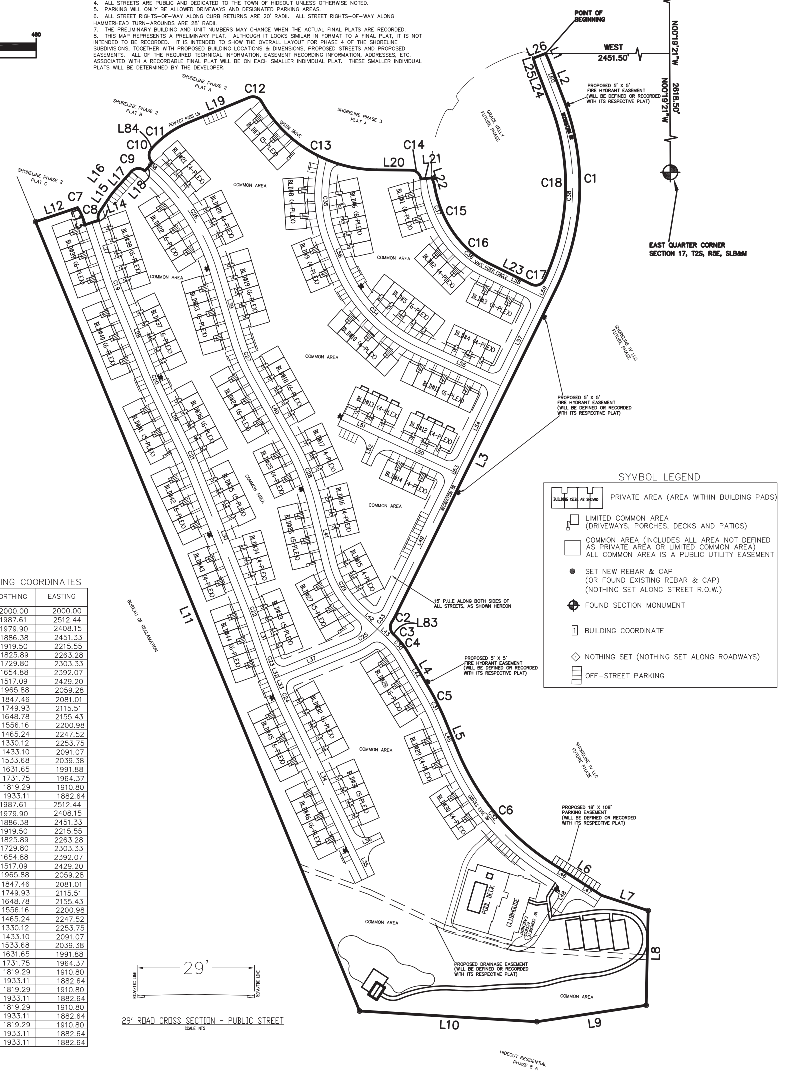
CURVE TABLE					
CURVE	LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH	DELTA
C1	398.76'	484.50'	S02°34'19"W	387.60'	47°09'21"
C2	17.81'	164.50'	S29°15'05"W	17.80'	6°12'12"
C3	27.654'	20.00'	S07°15'30"E	25.51'	79°13'22"
C4	47.45'	164.50'	S38°36'25"E	47.28'	16°31'32"
C5	72.08'	514.50'	S26°19'50"E	72.02'	8°01'38"
C6	304.86'	500.00'	S39°47'02"E	300.16'	34°56'03"
C7	26.30'	100.00'	S25°59'33"E	26.23'	15°04'12"
C8	18.29'	20.00'	N07°44'48"E	17.65'	52°24'29"
C9	31.41'	20.00'	N86°29'56"E	28.28'	89°58'58"
C10	31.41'	20.00'	N03°30'04"W	28.28'	89°58'58"
C11	90.99'	200.00'	N54°31'55"E	90.21'	26°03'58"
C12	29.02'	20.00'	S70°52'08"E	26.54'	83°07'57"
C13	287.04'	273.00'	S59°24'20"E	274.00'	60°14'33"
C14	29.35'	20.00'	S47°28'12"E	26.79'	84°05'44"
C15	119.70'	235.50'	S23°26'50"E	118.41'	29°07'18"
C16	83.67'	185.50'	S50°55'45"E	82.96'	25°50'31"
C17	31.78'	20.00'	N70°37'57"E	28.54'	91°02'05"
C18	366.66'	455.50'	N02°03'17"E	356.84'	46°07'15"
C19	33.68'	500.00'	S20°23'14"E	33.67'	3°51'34"
C20	29.42'	500.00'	S24°00'09"E	29.42'	3°22'16"
C21	35.48'	500.00'	N23°39'19"W	35.47'	4°03'57"
C22	21.78'	500.00'	N20°22'28"W	21.78'	2°29'46"
C23	27.84'	500.00'	S20°43'18"E	27.84'	3°11'27"
C24	29.42'	500.00'	S24°00'09"E	29.42'	3°22'16"
C25	64.28'	150.00'	N55°24'24"E	63.79'	24°33'10"
C26	250.39'	450.00'	N32°33'38"W	247.18'	31°52'52"
C27	88.39'	400.00'	S22°57'01"E	88.21'	12°39'38"
C28	135.59'	500.00'	N21°30'42"W	135.18'	15°32'16"
C29	115.63'	200.00'	S30°18'23"E	114.03'	33°07'37"
C30	43.26'	150.00'	N38°36'25"W	43.11'	16°31'32"
C31	70.05'	500.00'	N26°19'50"W	69.99'	8°01'38"
C32	313.70'	514.50'	S39°47'02"E	308.86'	34°56'03"
C33	44.45'	150.00'	N34°38'24"E	44.29'	16°58'50"
C34	239.18'	320.00'	S43°41'27"E	233.65'	42°49'27"
C35	175.13'	264.50'	S03°18'38"E	171.95'	37°56'11"
C36	90.21'	200.00'	S50°55'45"E	89.44'	25°50'31"
C37	142.22'	250.00'	S21°42'39"E	140.31'	32°35'41"
C38	386.82'	470.00'	N02°34'19"E	376.00'	47°09'21"

BUILDING COORDINATES

#	NORTHING	EASTING
0	2000.00	2000.00
1	1987.61	2512.44
2	1979.90	2408.15
3	1886.38	2451.33
4	1919.50	2215.55
5	1825.89	2263.28
6	1729.80	2303.33
7	1654.88	2392.07
8	1517.09	2429.20
9	1965.88	2059.28
10	1847.46	2081.01
11	1749.93	2115.51
12	1648.78	2155.43
13	1556.16	2200.98
14	1465.24	2247.52
15	1330.12	2253.75
16	1433.10	2091.07
17	1533.68	2039.38
18	1631.65	1991.88
19	1731.75	1964.37
20	1819.29	1910.80
21	1933.11	1882.64
22	1987.61	2512.44
23	1979.90	2408.15
24	1886.38	2451.33
25	1919.50	2215.55
26	1825.89	2263.28
27	1729.80	2303.33
28	1654.88	2392.07
29	1517.09	2429.20
30	1965.88	2059.28
31	1847.46	2081.01
32	1749.93	2115.51
33	1648.78	2155.43
34	1556.16	2200.98
35	1465.24	2247.52
36	1330.12	2253.75
37	1433.10	2091.07
38	1533.68	2039.38
39	1631.65	1991.88
40	1731.75	1964.37
41	1819.29	1910.80
42	1933.11	1882.64
43	1819.29	1910.80
44	1933.11	1882.64
45	1819.29	1910.80
46	1933.11	1882.64
47	1819.29	1910.80
48	1933.11	1882.64
CH	1933.11	1882.64

GENERAL NOTES:

1. ALL COMMON AREA IS TO BE CONSIDERED A DRAINAGE & PUBLIC UTILITY EASEMENT AND A SNOW STORAGE EASEMENT.
2. WITH THE VACATION OF PORTIONS OF THE PREVIOUS SHORELINE PHASE 2 C AND SHORELINE PHASE 2 A AMENDED PLATS, THE NEW STREETS AND EASEMENTS WILL BE SHOWN AS HEREON.
3. 6' WIDE TRAIL WILL BE DEDICATED TO THE MASTER H.O.A. ONCE COMPLETED, WITH ACCESS BY RESIDENTS OF HIDEOUT CANYON MASTER HOA AND WITH A PUBLIC EASEMENT/ACCESS GRANTED TO THE TOWN OF HIDEOUT.
4. ALL STREETS ARE PUBLIC AND DEDICATED TO THE TOWN OF HIDEOUT UNLESS OTHERWISE NOTED.
5. PARKING WILL ONLY BE ALLOWED DRIVEWAYS AND DESIGNATED PARKING AREAS.
6. ALL STREET RIGHTS–OF–WAY ALONG CURB RETURNS ARE 20' RADII. ALL STREET RIGHTS–OF–WAY ALONG HAMMERHEAD TURN–AROUNDS ARE 28' RADII.
7. THE PRELIMINARY BUILDING AND UNIT NUMBERS MAY CHANGE WHEN THE ACTUAL FINAL PLATS ARE RECORDED.
8. THIS MAP REPRESENTS A PRELIMINARY PLAT. ALTHOUGH IT LOOKS SIMILAR IN FORMAT TO A FINAL PLAT, IT IS NOT INTENDED TO BE RECORDED. IT IS INTENDED TO SHOW THE OVERALL LAYOUT FOR PHASE 4 OF THE SHORELINE SUBDIVISIONS, TOGETHER WITH PROPOSED BUILDING LOCATIONS & DIMENSIONS, PROPOSED STREETS AND PROPOSED EASEMENTS. ALL OF THE REQUIRED TECHNICAL INFORMATION, EASEMENT RECORDING INFORMATION, ADDRESSES, ETC. ASSOCIATED WITH A RECORDABLE FINAL PLAT WILL BE ON EACH SMALLER INDIVIDUAL PLAT. THESE SMALLER INDIVIDUAL PLATS WILL BE DETERMINED BY THE DEVELOPER.



SURVEYOR'S CERTIFICATE

I, David F. Hunt, do hereby certify that I am a professional Land Surveyor and that I hold a license No. 5243543-2201 in accordance with Utah Code Title 58, Chapter 22 of the Professional Engineers and Land Surveyors Licensing Act. I further certify that, by authority of the owners, I have completed a survey of the property described on this subdivision plat in accordance with Section 17-23-17, have verified all measurements, have subdivided said tract of land into lots, streets, together with easements, and have placed monuments on the ground as represented on the plat. I also certify that I have filed with the Wasatch County Surveyor, pursuant to State Law, a map of the survey I completed.

BOUNDARY DESCRIPTION

BEGINNING AT A POINT LOCATED NORTH 00°19'21" WEST ALONG THE SECTION LINE 212.53 FEET AND WEST 2451.50 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE SOUTH 24°49'12" EAST 15.03 FEET; THENCE SOUTH 21°00'21" EAST 87.87 FEET; THENCE ALONG THE ARC OF A 484.50–FOOT RADIUS CURVE TO THE RIGHT 398.76 FEET (CHORD BEARS S 02°34'19" W 387.60 FEET); THENCE SOUTH 26°09'01" WEST 740.14 FEET; THENCE ALONG THE ARC OF A 164.50–FOOT RADIUS CURVE TO THE RIGHT 17.81 FEET (CHORD BEARS S 29°15'05" W 17.80 FEET); THENCE ALONG THE ARC OF A 20.00–FOOT RADIUS CURVE TO THE LEFT 27.654 FEET (CHORD BEARS S 07°15'30" E 25.51 FEET); THENCE SOUTH 46°52'11" EAST 1.43 FEET; THENCE ALONG THE ARC OF A 164.50–FOOT RADIUS CURVE TO THE RIGHT 47.45 FEET (CHORD BEARS S 38°36'25" E 47.28 FEET); THENCE SOUTH 30°20'39" EAST 87.98 FEET; THENCE ALONG THE ARC OF A 514.50–FOOT RADIUS CURVE TO THE RIGHT 72.08 FEET (CHORD BEARS S 26°19'50" E 72.02 FEET); THENCE SOUTH 22°19'01" EAST 63.70 FEET; THENCE ALONG THE ARC OF A 500.00–FOOT RADIUS CURVE TO THE LEFT 304.86 FEET (CHORD BEARS S39°47'02" E 300.16 FEET); THENCE SOUTH 57°15'04" EAST 122.23 FEET; THENCE SOUTH 71°52'02" EAST 100.10 FEET; THENCE SOUTH 01°12'03" WEST 193.58 FEET; THENCE SOUTH 81°26'17" WEST 226.34 FEET; THENCE NORTH 86°31'55" WEST 363.22 FEET; THENCE NORTH 22°19'01" WEST 1745.25 FEET; THENCE NORTH 71°32'33" EAST 90.74 FEET; THENCE ALONG THE ARC OF A 100.00–FOOT RADIUS CURVE TO THE RIGHT 26.30 FEET (CHORD BEARS S 25°59'33" E 26.23 FEET); THENCE SOUTH 18°27'27" EAST 12.09 FEET; THENCE NORTH 71°32'33" EAST 29.00 FEET; THENCE ALONG THE ARC OF A 20.00–FOOT RADIUS CURVE TO THE RIGHT 18.29 FEET (CHORD BEARS N 07°44'48" E 17.65 FEET); THENCE NORTH 33°57'03" EAST 39.57 FEET; THENCE NORTH 37°43'29" EAST 13.16 FEET; THENCE NORTH 41°29'56" EAST 51.39 FEET; THENCE ALONG THE ARC OF A 20.00–FOOT RADIUS CURVE TO THE RIGHT 31.41 FEET (CHORD BEARS N 86°29'56" E 28.28 FEET); THENCE NORTH 41°29'56" EAST 23.00 FEET; THENCE ALONG THE ARC OF A 20.00–FOOT RADIUS CURVE TO THE RIGHT 31.41 FEET (CHORD BEARS N 03°30'04" W 28.28 FEET); THENCE NORTH 41°29'56" EAST 0.68 FEET; THENCE ALONG THE ARC OF A 200.00–FOOT RADIUS CURVE TO THE RIGHT 90.99 FEET (CHORD BEARS N 54°31'55" E 90.21 FEET); THENCE NORTH 67°33'54" EAST 136.42 FEET; THENCE ALONG THE ARC OF A 20.00–FOOT RADIUS CURVE TO THE RIGHT 29.02 FEET (CHORD BEARS S 70°52'08" E 26.54 FEET); THENCE ALONG THE ARC OF A 273.00–FOOT RADIUS CURVE TO THE LEFT 287.04 FEET (CHORD BEARS S 59°24'20" E 274.00 FEET); THENCE SOUTH 89°31'37" EAST 70.12 FEET; THENCE ALONG THE ARC OF A 20.00–FOOT RADIUS CURVE TO THE RIGHT 29.35 FEET (CHORD BEARS S 47°28'12" E 26.79 FEET); THENCE NORTH 84°35'12" EAST 23.00 FEET; THENCE SOUTH 18°56'29" EAST 14.67 FEET; THENCE ALONG THE ARC OF A 235.50–FOOT RADIUS CURVE TO THE LEFT 119.70 FEET (CHORD BEARS S 23°26'50" E 118.41 FEET); THENCE ALONG THE ARC OF A 185.50–FOOT RADIUS CURVE TO THE LEFT 83.67 FEET (CHORD BEARS S 50°55'45" E 82.96 FEET); THENCE SOUTH 63°51'00" EAST 97.00 FEET; THENCE ALONG THE ARC OF A 20.00–FOOT RADIUS CURVE TO THE LEFT 31.78 FEET (CHORD BEARS N 70°37'57" E 28.54 FEET); THENCE ALONG THE ARC OF A 455.50–FOOT RADIUS CURVE TO THE LEFT 366.66 FEET (CHORD BEARS N 02°03'17" E 356.84 FEET); THENCE NORTH 21°00'21" WEST 87.87 FEET; THENCE NORTH 17°12'15" WEST 15.04 FEET; THENCE NORTH 68°59'39" EAST 27.00 FEET TO THE POINT OF BEGINNING.

AREA = 25.7385 ACRES
49 BUILDINGS

08-23-25
DATE

SURVEYOR (see seal below)

BASIS OF BEARING:

NORTH 00°19'21" WEST ALONG THE SECTION LINE FROM THE EAST QUARTER CORNER TO THE NORTHEAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN.

OWNER'S DEDICATION

The undersigned owner(s) of the above-described tract of land has/have caused the same to be subdivided into lots, parcels, and streets, together with easements and rights-of-way, to be hereafter known as:

SHORELINE PHASE 4, PLAT A1

and do hereby dedicate for the perpetual use of the public and Town of Hideout (Town) all parcels, lots, streets, easements, rights-of-way, and public amenities shown on this plat as intended for public or Town use. The undersigned owner(s), agents, successors, and assigns shall voluntarily defend, indemnify, and save harmless the Town against any easements or other encumbrance on a dedicated street, easement, or right-of-way that will interfere with the Town's use, maintenance, and operation of the street or utilities. The undersigned owner(s), agents, successors, and assigns also hereby convey any other easements, as shown and/or noted on this plat, to the parties indicated and for the purposes shown and/or noted hereon. The Town assumes no liability with respect to the creation of this subdivision, the alteration of the ground surface, vegetation, drainage, or surface or sub-surface water flows within this subdivision, and the development activity within this subdivision.

In witness whereof I have set forth my hand this___ day of _____ , 20__.___

Signature — Print Name — Title & Entity

Signature — Print Name — Title & Entity

OWNER'S ACKNOWLEDGMENT

STATE OF UTAH } S.S.
County of Utah

On this___day of _____, 20__, personally appeared before me ______________________, who being by me duly sworn, did prove to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument, and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies).

WITNESS my hand and official seal.

Notary Public Full Name:____________________________

APPROVAL BY LEGISLATIVE BODY

The Town of Hideout City Council, County of Wasatch, approves this subdivision subject to the conditions and restrictions stated hereon, and hereby accepts the dedication of all streets, easements, and other parcels of land intended for the public purpose of the perpetual use of the public.

Mayor — Date

RECORDER'S SEAL

PREPARED BY:

LEVEL OF FOCUS, INC
1334 East 1150 South
Spanish Fork, Utah 84660
(801) 319-5441

OWNERS

GENERAL CONSTRUCTION AND DEVELOPMENT, INC.
3214 NORTH UNIVERSITY AVE.
SUITE #605
PROVO, UT 84604

PLANNING MANAGER
Approved on this ______ day of ______________, 20____
PLANNING MANAGER

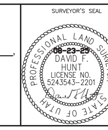
TOWN ENGINEER
Approved on this ______ day of ______________, 20____
TOWN ENGINEER

WASATCH CO. FIRE DISTRICT
Approved on this ______ day of ______________, 20____
FIRE CHIEF

TOWN ATTORNEY
Approved on this ______ day of ______________, 20____
TOWN ATTORNEY

COUNTY SURVEYOR
Approved on this ______ day of ______________, 20____
COUNTY SURVEYOR

SURVEYOR'S SEAL



COUNTY RECORDER

ENTRY #_______ DATE _______ TIME
FEE _______ BOOK _______ PAGE
FOR_______________
BY _______________
WASATCH COUNTY RECORDER

29.00-FOOT TEMPORARY UTILITY CONSTRUCTION EASEMENT, 14.50 FEET ON BOTH SIDES OF THE FOLLOWING CENTERLINE DESCRIPTION:

BEGINNING AT A POINT LOCATED SOUTH 133.308 FEET AND WEST 3380.818 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE SOUTH 18°27'27" EAST 122.38 FEET; THENCE ALONG THE ARC OF A 500.00-FOOT RADIUS CURVE TO THE LEFT 33.68 FEET (CHORD BEARS S 20°23'14" E 33.67 FEET); THENCE SOUTH 22°19'01" EAST 177.35 FEET; THENCE ALONG THE ARC OF A 500.00-FOOT RADIUS CURVE TO THE LEFT 29.42 FEET (CHORD BEARS S 24°00'09" E 29.42 FEET); THENCE SOUTH 25°41'17" EAST 140.11 FEET; THENCE ALONG THE ARC OF A 500.00-FOOT RADIUS CURVE TO THE RIGHT 35.48 FEET (CHORD BEARS S 23°39'19" E 35.47 FEET); THENCE SOUTH 21°37'21" EAST 313.79 FEET; THENCE ALONG THE ARC OF A 500.00-FOOT RADIUS CURVE TO THE RIGHT 21.78 FEET (CHORD BEARS S 20°22'28" E 21.78 FEET); THENCE SOUTH 19°07'34" EAST 82.93 FEET; THENCE ALONG THE ARC OF A 500.00-FOOT RADIUS CURVE TO THE LEFT 27.84 FEET (CHORD BEARS S 20°43'18" E 27.84 FEET); THENCE SOUTH 22°19'01" EAST 20.57 FEET; THENCE NORTH 67°40'59" EAST 171.70 FEET; THENCE ALONG THE ARC OF A 150.00-FOOT RADIUS CURVE TO THE LEFT 64.28 FEET (CHORD BEARS N 55°24'24" E 63.79 FEET); THENCE SOUTH 46°52'11" EAST 32.68 FEET; THENCE ALONG THE ARC OF A 150.00-FOOT RADIUS CURVE TO THE RIGHT 43.26 FEET (CHORD BEARS S 38°36'25" E 43.11 FEET); THENCE SOUTH 30°20'39" EAST 87.98 FEET; THENCE ALONG THE ARC OF A 500.00-FOOT RADIUS CURVE TO THE RIGHT 70.05 FEET (CHORD BEARS S 26°19'50" E 69.99 FEET); THENCE SOUTH 22°19'01" EAST 63.70 FEET; THENCE ALONG THE ARC OF A 514.50-FOOT RADIUS CURVE TO THE LEFT 179.45 FEET (CHORD BEARS S 32°18'32" E 178.54 FEET) TO THE END POINT.

10.00-FOOT TEMPORARY SEWER EASEMENT, 5.00 FEET ON BOTH SIDES OF THE FOLLOWING CENTERLINE DESCRIPTION:

BEGINNING AT A POINT LOCATED SOUTH 1375.344 FEET AND WEST 2564.894 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE SOUTH 43°25'45" WEST 84.62 FEET; THENCE SOUTH 17°02'17" WEST 160.46 FEET; THENCE SOUTH 21°54'50" EAST 183.16 FEET TO THE END POINT.

NARRATIVE

1. THE PURPOSE OF THIS SURVEY IS TO SHOW HOW THE EXISTING FIVE PARCELS ARE RECONFIGURED INTO FOUR NEW PARCELS. THE EXISTING FIVE PARCELS, AS SHOWN IN THE WASATCH COUNTY RECORDER'S OFFICE, ARE AS FOLLOWS: 00-0020-9100, 00-0020-9101, 00-0020-8167, 00-0021-3804 AND 00-0021-3800.
2. THE BASIS OF BEARING IS NORTH 00°19'21" WEST ALONG THE SECTION LINE FROM THE EAST QUARTER CORNER TO THE NORTHEAST CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE & MERIDIAN. OTHER SECTION LINES AND MONUMENTS ARE SHOWN FOR REFERENCE.
3. FOUND WASATCH COUNTY BRASS CAP MONUMENTS AT SAID SECTION CORNERS OF SECTION 17.
4. FOUND REBAR & CAP, AS SHOWN HEREON.
5. TITLE LINES SHOWN, IF GIVEN A BASIS OF BEARING, HAVE BEEN ROTATED TO THE BASIS OF BEARING STATED HEREON. IF NONE WAS GIVEN, NONE WAS ASSUMED.
6. REBAR & CAP (LS 5243543) WILL BE SET AT THE PROPERTY CORNERS, AS SHOWN HEREON. NO CORNERS WILL BE SET ALONG THE EXISTING OR FUTURE ROADWAYS.

CERTIFICATION

I, DAVID F. HUNT, HEREBY CERTIFY THAT I AM A PROFESSIONAL LAND SURVEYOR IN THE STATE OF UTAH; THAT THE SURVEY IS TRUE AND CORRECT AS SHOWN; THAT THIS MAP CORRECTLY REPRESENTS A BOUNDARY SURVEY MADE UNDER MY SUPERVISION DURING THE MONTH OF JULY 2024, JUNE 2025 AND AUGUST 2025; AND THE PROPERTY BOUNDARY DESCRIBED AND THE INFORMATION SHOWN HEREON IS SUFFICIENT TO ENABLE THIS SURVEY TO BE RETRACED.

PROFESSIONAL LAND SURVEYOR
08-23-25
DAVID F. HUNT
LICENSE NO. 5243543-2201
STATE OF UTAH

WEST PARCEL DESCRIPTION

BEGINNING AT A POINT LOCATED NORTH 00°19'21" WEST ALONG THE SECTION LINE 212.53 FEET AND WEST 2451.50 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE SOUTH 24°49'12" EAST 15.03 FEET; THENCE SOUTH 21°00'21" EAST 87.87 FEET; THENCE ALONG THE ARC OF A 484.50-FOOT RADIUS CURVE TO THE RIGHT 398.76 FEET (CHORD BEARS S 02°34'19" W 387.60 FEET); THENCE SOUTH 26°09'01" WEST 740.14 FEET; THENCE ALONG THE ARC OF A 164.50-FOOT RADIUS CURVE TO THE RIGHT 17.81 FEET (CHORD BEARS S 29°15'05" W 17.80 FEET); THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE LEFT 27.654 FEET (CHORD BEARS S 07°15'30" E 25.51 FEET); THENCE SOUTH 46°52'11" EAST 1.43 FEET; THENCE ALONG THE ARC OF A 164.50-FOOT RADIUS CURVE TO THE RIGHT 47.45 FEET (CHORD BEARS S 38°36'25" E 47.28 FEET); THENCE SOUTH 30°20'39" EAST 87.98 FEET; THENCE ALONG THE ARC OF A 514.50-FOOT RADIUS CURVE TO THE RIGHT 72.08 FEET (CHORD BEARS S 26°19'50" E 72.02 FEET); THENCE SOUTH 22°19'01" EAST 63.70 FEET; THENCE ALONG THE ARC OF A 500.00-FOOT RADIUS CURVE TO THE LEFT 304.86 FEET (CHORD BEARS S39°47'02" E 300.16 FEET); THENCE SOUTH 57°15'04" EAST 122.23 FEET; THENCE SOUTH 71°52'02" EAST 100.10 FEET; THENCE SOUTH 01°12'03" WEST 193.58 FEET; THENCE SOUTH 81°26'17" WEST 226.34 FEET; THENCE NORTH 86°31'55" WEST 363.22 FEET; THENCE NORTH 22°19'01" WEST 1745.25 FEET; THENCE NORTH 71°32'33" EAST 90.74 FEET; THENCE ALONG THE ARC OF A 100.00-FOOT RADIUS CURVE TO THE RIGHT 26.30 FEET (CHORD BEARS S 25°59'33" E 26.23 FEET); THENCE SOUTH 18°27'27" EAST 12.09 FEET; THENCE NORTH 71°32'33" EAST 29.00 FEET; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE RIGHT 18.29 FEET (CHORD BEARS N 07°44'48" E 17.65 FEET); THENCE NORTH 33°57'03" EAST 39.57 FEET; THENCE NORTH 37°43'29" EAST 13.16 FEET; THENCE NORTH 41°29'56" EAST 51.39 FEET; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE RIGHT 31.41 FEET (CHORD BEARS N 86°29'56" E 28.28 FEET); THENCE NORTH 41°29'56" EAST 23.00 FEET; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE RIGHT 31.41 FEET (CHORD BEARS N 03°30'04" W 28.28 FEET); THENCE NORTH 41°29'56" EAST 0.68 FEET; THENCE ALONG THE ARC OF A 200.00-FOOT RADIUS CURVE TO THE RIGHT 90.99 FEET (CHORD BEARS N 54°31'55" E 90.21 FEET); THENCE NORTH 67°33'54" EAST 136.42 FEET; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE RIGHT 29.02 FEET (CHORD BEARS S 70°52'08" E 26.54 FEET); THENCE ALONG THE ARC OF A 273.00-FOOT RADIUS CURVE TO THE LEFT 287.04 FEET (CHORD BEARS S 59°24'20" E 274.00 FEET); THENCE SOUTH 89°31'37" EAST 70.12 FEET; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE RIGHT 29.35 FEET (CHORD BEARS S 47°28'12" E 26.79 FEET); THENCE NORTH 84°35'12" EAST 23.00 FEET; THENCE SOUTH 18°56'29" EAST 14.67 FEET; THENCE ALONG THE ARC OF A 235.50-FOOT RADIUS CURVE TO THE LEFT 119.70 FEET (CHORD BEARS S 23°26'50" E 118.41 FEET); THENCE ALONG THE ARC OF A 185.50-FOOT RADIUS CURVE TO THE LEFT 83.67 FEET (CHORD BEARS S 50°55'45" E 82.96 FEET); THENCE SOUTH 63°51'00" EAST 97.00 FEET; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE LEFT 31.78 FEET (CHORD BEARS N 70°37'57" E 28.54 FEET); THENCE ALONG THE ARC OF A 455.50-FOOT RADIUS CURVE TO THE LEFT 366.66 FEET (CHORD BEARS N 02°03'17" E 356.84 FEET); THENCE NORTH 21°00'21" WEST 87.87 FEET; THENCE NORTH 17°12'15" WEST 15.04 FEET; THENCE NORTH 68°59'39" EAST 27.00 FEET TO THE POINT OF BEGINNING.

AREA = 25.7385 ACRES

EAST PARCEL DESCRIPTION

BEGINNING AT A POINT ON THE BOUNDARY OF HIDEOUT CANYON PHASE 6, SAID POINT BEING LOCATED SOUTH 22.18 FEET AND WEST 1984.707 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE SOUTH 89°21'35" WEST 398.945 FEET; THENCE ALONG THE ARC OF A 484.50-FOOT RADIUS CURVE TO THE RIGHT 251.34 FEET (CHORD BEARS S 11°17'19" W 248.531 FEET); THENCE SOUTH 26°09'01" WEST 740.14 FEET; THENCE ALONG THE ARC OF A 164.50-FOOT RADIUS CURVE TO THE RIGHT 17.81 FEET (CHORD BEARS S 29°15'05" W 17.80 FEET); THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE LEFT 27.654 FEET (CHORD BEARS S 07°15'30" E 25.51 FEET); THENCE SOUTH 46°52'11" EAST 1.43 FEET; THENCE ALONG THE ARC OF A 164.50-FOOT RADIUS CURVE TO THE RIGHT 47.45 FEET (CHORD BEARS S 38°36'25" E 47.28 FEET); THENCE SOUTH 30°20'39" EAST 87.98 FEET; THENCE ALONG THE ARC OF A 514.50-FOOT RADIUS CURVE TO THE RIGHT 72.08 FEET (CHORD BEARS S 26°19'50" E 72.02 FEET); THENCE SOUTH 22°19'01" EAST 63.70 FEET; THENCE ALONG THE ARC OF A 500.00-FOOT RADIUS CURVE TO THE LEFT 304.86 FEET (CHORD BEARS S 39°47'02" E 300.16 FEET); THENCE SOUTH 57°15'04" EAST 122.23 FEET; THENCE SOUTH 71°52'02" EAST 100.10 FEET; THENCE SOUTH 01°12'03" WEST 193.58 FEET TO THE BOUNDARY OF HIDEOUT CANYON PHASE 8A; THENCE ALONG SAID BOUNDARY OF HIDEOUT CANYON PHASE 8A THE FOLLOWING: SOUTH 40°21'49" EAST 1060.94 FEET, SOUTH 27°40'09" EAST 50.01 FEET AND SOUTH 61°55'22" WEST 41.26 FEET MORE OR LESS TO THE NORTHERLY BOUNDARY OF THE MUSTANG DEVELOPMENT LLC PARCEL 21-0994; THENCE ALONG SAID MUSTANG DEVELOPMENT LLC PARCEL NORTH 89°40'54" EAST 387.29 FEET; THENCE NORTH 23°22'17" WEST 12.868 FEET; THENCE NORTH 23°23'54" WEST 39.79 FEET MORE OR LESS TO THE BOUNDARY OF THE MUSTANG DEVELOPMENT LLC PARCEL 20-8171; THENCE ALONG SAID MUSTANG DEVELOPMENT LLC PARCEL THE FOLLOWING: NORTH 23°23'36" WEST 83.56 FEET, NORTH 06°21'19" WEST 95.94 FEET, NORTH 08°09'33" EAST 83.89 FEET, NORTH 20°17'05" EAST 59.78 FEET AND NORTH 33°48'32" EAST 63.14 FEET; THENCE SOUTH 76°01'08" EAST 114.85 FEET; THENCE NORTH 11°17'49" EAST 36.60 FEET MORE OR LESS TO THE BOUNDARY HIDEOUT CANYON PHASE 5; THENCE ALONG SAID HIDEOUT CANYON PHASE 5 THE FOLLOWING: NORTH 11°17'49" EAST 96.66 FEET, ALONG THE ARC OF A 475.01-FOOT RADIUS CURVE TO THE RIGHT 147.78 FEET (CHORD BEARS N 20°12'36" E 147.18 FEET), NORTH 29°07'20" EAST 103.27 FEET, ALONG THE ARC OF A 150.00-FOOT RADIUS CURVE TO THE LEFT 381.39 FEET (CHORD BEARS N 43°43'08" W 286.65 FEET), ALONG THE ARC OF A 220.77-FOOT RADIUS CURVE TO THE RIGHT 247.08 FEET (CHORD BEARS N 84°29'52" W 234.38 FEET), ALONG THE ARC OF A 805.48-FOOT RADIUS CURVE TO THE LEFT (CHORD BEARS N 56°50'57" W 123.96 FEET), ALONG THE ARC OF A 365.66-FOOT RADIUS CURVE TO THE RIGHT 108.62 FEET (CHORD BEARS N 52°45'07" W 108.23 FEET), SOUTH 56°01'09" WEST 148.67 FEET, NORTH 72°15'25" WEST 232.49 FEET, NORTH 25°04'25" WEST 242.41 FEET, NORTH 03°54'07" EAST 238.34 FEET, NORTH 30°16'54" EAST 217.39 FEET, NORTH 01°11'27" EAST 108.48 FEET, NORTH 05°44'22" EAST 159.23 FEET AND NORTH 85°03'28" EAST 45.436 FEET MORE OR LESS TO THE BOUNDARY OF SAID HIDEOUT CANYON PHASE 6; THENCE ALONG SAID HIDEOUT CANYON PHASE 6 THE FOLLOWING: NORTH 05°13'06" WEST 251.08 FEET, NORTH 32°58'51" WEST 143.46 FEET, NORTH 44°16'21" WEST 127.58 FEET, NORTH 39°46'43" WEST 56.37 FEET AND NORTH 43°55'16" EAST 93.43 FEET TO THE POINT OF BEGINNING.

AREA = 1,829,692 SQ. FT. OR 42.0039 ACRES

MIDDLE PARCEL DESCRIPTION

BEGINNING AT A POINT LOCATED NORTH 00°19'21" WEST ALONG THE SECTION LINE 212.53 FEET, WEST 2451.50 FEET AND SOUTH 68°59'39" WEST 27.00 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE LEFT 31.42 FEET (CHORD BEARS N 66°00'21" W 28.28 FEET); THENCE SOUTH 68°59'39" WEST 31.44 FEET; THENCE ALONG THE ARC OF A 238.50-FOOT RADIUS CURVE TO THE LEFT 123.95 FEET (CHORD BEARS S 54°06'20" W 122.56 FEET); THENCE ALONG THE ARC OF A 10.00-FOOT RADIUS CURVE TO THE LEFT 16.67 FEET (CHORD BEARS S 08°32'44" E 14.81 FEET); THENCE SOUTH 33°41'31" WEST 24.00 FEET; THENCE ALONG THE ARC OF A 10.00-FOOT RADIUS CURVE TO THE LEFT 16.67 FEET (CHORD BEARS S 75°55'46" W 14.81 FEET); THENCE ALONG THE ARC OF A 238.50-FOOT RADIUS CURVE TO THE LEFT 139.78 FEET (CHORD BEARS S 11°22'37" W 137.79 FEET; THENCE SOUTH 18°56'29" EAST 14.67 FEET; THENCE ALONG THE ARC OF A 235.50-FOOT RADIUS CURVE TO THE LEFT 119.70 FEET (CHORD BEARS S 23°26'50" E 118.41 FEET); THENCE ALONG THE ARC OF A 185.50-FOOT RADIUS CURVE TO THE LEFT 83.67 FEET (CHORD BEARS S 50°55'45" E 82.96 FEET); THENCE SOUTH 63°51'00" EAST 97.00 FEET; THENCE ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE LEFT 31.78 FEET (CHORD BEARS N 70°37'57" E 28.54 FEET); THENCE ALONG THE ARC OF A 455.50-FOOT RADIUS CURVE TO THE LEFT 366.66 FEET (CHORD BEARS N 02°03'17" E 356.84 FEET); THENCE NORTH 21°00'21" WEST 87.87 FEET; THENCE NORTH 17°12'15" WEST 15.04 FEET TO THE POINT OF BEGINNING.

AREA = 94,549 SQ. FT. OR 2.1705 ACRES

NORTH PARCEL DESCRIPTION

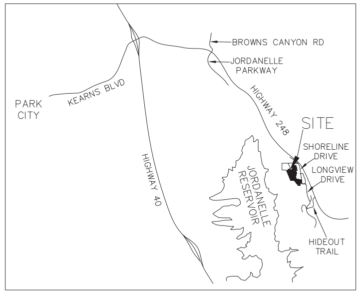
BEGINNING AT A POINT LOCATED NORTH 00°19'21" WEST ALONG THE SECTION LINE 212.53 FEET AND WEST 2451.50 FEET FROM THE EAST QUARTER CORNER OF SECTION 17, TOWNSHIP 2 SOUTH, RANGE 5 EAST, SALT LAKE BASE AND MERIDIAN; THENCE SOUTH 24°49'12" EAST 15.03 FEET; THENCE SOUTH 21°00'21" EAST 87.87 FEET; THENCE ALONG THE ARC OF A 484.50-FOOT RADIUS CURVE TO THE RIGHT 147.415 FEET (CHORD BEARS S 12°17'22" E 146.847 FEET); THENCE NORTH 89°21'35" EAST 642.755 FEET PARTIALLY ALONG HIDEOUT CANYON PHASE 6; THENCE SOUTH 87°28'08" EAST 25.349 FEET MORE OR LESS TO THE SOUTHEAST CORNER OF VENTURE PLAT A; THENCE MORE OR LESS ALONG SAID VENTURI PLAT A ALONG THE ARC OF A 313.50-FOOT RADIUS CURVE TO THE RIGHT 139.597 FEET (CHORD BEARS N 23°55'05" W 138.447 FEET); THENCE ALONG SAID VENTURI PLAT A AND SHORELINE PHASE 2, PLAT A AMENDED NORTH 11°09'42" WEST 534.25 FEET; THENCE CONTINUING ALONG SAID SHORELINE PHASE 2, PLAT A AMENDED THE FOLLOWING : ALONG THE ARC OF A 300.00-FOOT RADIUS CURVE TO THE LEFT 95.50 FEET (CHORD BEARS N 20°16'54" W 95.10 FEET), NORTH 29°24'06" WEST 85.94 FEET, ALONG THE ARC OF A 24.00-FOOT RADIUS CURVE TO THE LEFT 37.70 FEET (CHORD BEARS N 74°24'06" W 33.94 FEET), SOUTH 60°36'54" WEST 16.32 FEET, ALONG THE ARC OF A 163.50-FOOT RADIUS CURVE TO THE RIGHT 146.87 FEET (CHORD BEARS S 86°19'59" W 141.99 FEET), NORTH 67°55'55" WEST 26.49 FEET, ALONG THE ARC OF A 193.00-FOOT RADIUS CURVE TO THE LEFT 283.96 FEET (CHORD BEARS S 69°55'04" W 259.04 FEET), SOUTH 27°46'03" WEST 140.28 FEET, ALONG THE ARC OF A 336.50-FOOT RADIUS CURVE TO THE LEFT 6.74 FEET (CHORD BEARS S 27°11'38" W 6.74 FEET), ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE LEFT 33.47 FEET (CHORD BEARS S 21°19'00" E 29.70 FEET), SOUTH 20°56'07" WEST 24.00 FEET, ALONG THE ARC OF A 20.00-FOOT RADIUS CURVE TO THE LEFT 33.42 FEET (CHORD BEARS S 62°52'50" W 29.66 FEET), ALONG THE ARC OF A 336.50-FOOT RADIUS CURVE TO THE LEFT 211.55 FEET (CHORD BEARS S 02°59'45" E 208.08 FEET) AND SOUTH 21°00'21" EAST 99.84 FEET TO THE POINT OF BEGINNING.

AREA = 505,633 SQ. FT. OR 11.6077 ACRES

SYMBOL LEGEND

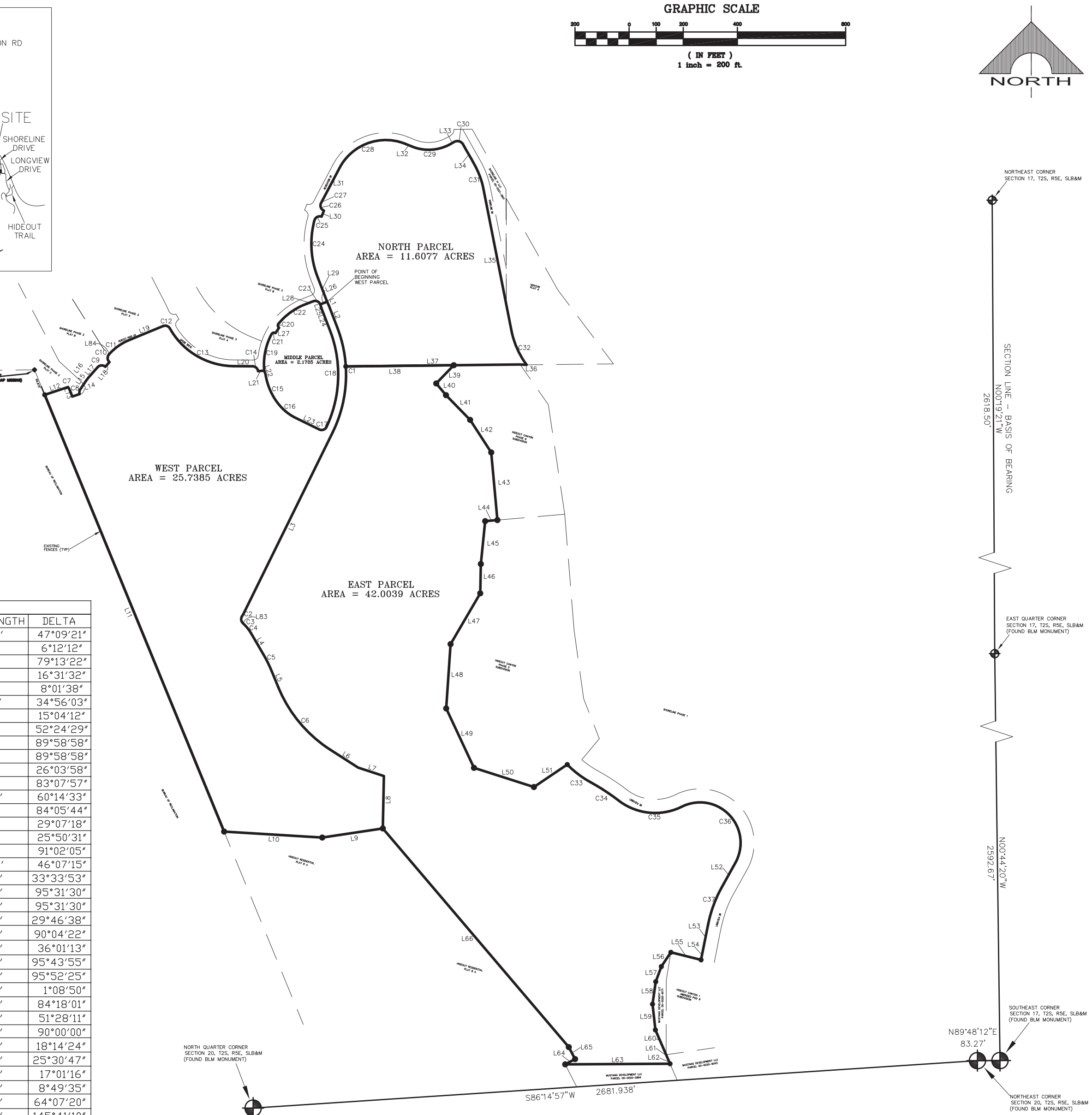
- FOUND SECTION MONUMENT
- SUBDIVISION BOUNDARY
- ADJOINER LINES
- FOUND REBAR & CAP
- SET REBAR & CAP
- NOTHING SET

LINE TABLE		
LINE	LENGTH	BEARING
L1	15.03	S24°49'12"E
L2	87.87	S21°00'21"E
L3	740.14	S26°09'01"W
L4	87.98	S30°20'39"E
L5	63.70	S22°19'01"E
L6	122.23	S57°15'04"E
L7	100.10	S71°52'02"E
L8	193.58	S01°12'03"W
L9	226.34	S81°26'17"W
L10	363.22	N86°31'55"W
L11	1745.25	N22°19'01"W
L12	90.74	N71°32'33"E
L13	12.09	S18°27'27"E
L14	29.00	N71°32'33"E
L15	39.57	N33°57'03"E
L16	13.16	N37°43'29"E
L17	51.39	N41°29'56"E
L18	23.00	N41°29'56"E
L19	136.42	N67°33'54"E
L20	70.12	S89°31'37"E
L21	23.00	N84°35'12"E
L22	14.67	S18°56'29"E
L23	97.00	S63°51'00"E
L24	87.87	N21°00'21"W
L25	15.04	N17°12'15"W
L26	27.00	N68°59'39"E
L27	24.00'	S33°41'31"W
L28	31.44'	S68°59'39"W
L29	99.84'	S21°00'21"E
L30	24.00'	S20°56'07"W
L31	140.28'	S27°46'03"W
L32	26.49'	N67°55'55"W
L33	16.32'	S60°35'54"W
L34	85.94'	N29°24'06"W
L35	534.25'	N11°09'46"W
L36	25.35'	S87°28'08"E
L37	642.76'	N89°21'35"E
L38	398.95'	S89°21'35"W
L39	93.43'	N43°55'16"E
L40	56.37'	N39°46'43"W
L41	127.58'	N44°16'21"W
L42	143.46'	N32°58'51"W
L43	251.08'	N05°13'06"W
L44	45.44'	N85°03'28"E
L45	159.23'	N05°44'22"E
L46	108.48'	N01°11'27"E
L47	217.39'	N30°16'54"E
L48	238.34'	N03°54'07"E
L49	242.41'	N25°04'25"W
L50	232.49'	N72°15'25"W
L51	148.67'	S56°01'09"W
L52	103.27'	N29°07'20"E
L53	96.66'	N11°17'44"E
L54	36.60'	N11°17'49"E
L55	114.85'	S76°01'08"E
L56	63.14'	N33°48'32"E
L57	59.78'	N20°17'05"E
L58	83.89'	N08°09'33"E
L59	95.94'	N06°21'19"W
L60	83.56'	N23°23'36"W
L61	39.79'	N23°23'54"W
L62	12.87'	N23°22'17"W
L63	387.28'	N89°40'54"E
L64	41.26'	S61°55'22"W
L65	50.01'	S27°40'09"E
L66	1060.94'	S40°21'49"E



VICINITY MAP

CURVE TABLE					
CURVE	LENGTH	RADIUS	CHORD BEARING	CHORD LENGTH	DELTA
C1	398.76'	484.50'	S02°34'19"W	387.60'	47°09'21"
C2	17.81'	164.50'	S29°15'05"W	17.80'	6°12'12"
C3	27.654'	20.00'	S07°15'30"E	25.51'	79°13'22"
C4	47.45'	164.50'	S38°36'25"E	47.28'	16°31'32"
C5	72.08'	514.50'	S26°19'50"E	72.02'	8°01'38"
C6	304.86'	500.00'	S39°47'02"E	300.16'	34°56'03"
C7	26.30'	100.00'	S25°59'33"E	26.23'	15°04'12"
C8	18.29'	20.00'	N07°44'48"E	17.65'	52°24'29"
C9	31.41'	20.00'	N86°29'56"E	28.28'	89°58'58"
C10	31.41'	20.00'	N03°30'04"W	28.28'	89°58'58"
C11	90.99'	200.00'	N54°31'55"E	90.21'	26°03'58"
C12	29.02'	20.00'	S70°52'08"E	26.54'	83°07'57"
C13	287.04'	273.00'	S59°24'20"E	274.00'	60°14'33"
C14	29.35'	20.00'	S47°28'12"E	26.79'	84°05'44"
C15	119.70'	235.50'	S23°26'50"E	118.41'	29°07'18"
C16	83.67'	185.50'	S50°55'45"E	82.96'	25°50'31"
C17	31.78'	20.00'	N70°37'57"E	28.54'	91°02'05"
C18	366.66'	455.50'	N02°03'17"E	356.84'	46°07'15"
C19	139.78'	238.61'	S11°22'51"W	137.79'	33°33'53"
C20	16.67'	10.00'	S75°55'46"W	14.81'	95°31'30"
C21	16.67'	10.00'	S08°32'44"E	14.81'	95°31'30"
C22	123.95'	238.50'	S54°06'20"W	122.56'	29°46'38"
C23	31.41'	19.98'	N65°59'36"W	28.27'	90°04'22"
C24	211.55'	336.50'	S02°59'45"E	208.08'	36°01'13"
C25	33.42'	20.00'	S62°52'50"W	29.66'	95°43'55"
C26	33.47'	20.00'	S21°19'00"E	29.70'	95°52'25"
C27	6.74'	336.50'	S27°11'38"W	6.74'	1°08'50"
C28	283.96'	193.00'	S69°55'04"W	259.04'	84°18'01"
C29	146.87'	163.50'	N86°19'59"E	141.99'	51°28'11"
C30	37.70'	24.00'	N74°24'06"W	33.94'	90°00'00"
C31	95.50'	300.00'	N20°16'54"W	95.10'	18°14'24"
C32	139.60'	313.50'	S23°55'05"E	138.45'	25°30'47"
C33	108.63'	365.66'	S52°45'07"E	108.23'	17°01'16"
C34	124.08'	805.48'	N56°50'57"W	123.96'	8°49'35"
C35	247.07'	220.77'	S84°29'52"E	234.38'	64°07'20"
C36	381.41'	150.00'	N43°43'08"W	286.65'	145°41'10"
C37	147.78'	475.01'	S20°12'36"W	147.18'	17°49'29"



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SHORELINE PROPERTY

BOUNDARY SURVEY

HIDEOUT UTAH

DESIGNER	DRAWN BY	CHECKED BY	SHEET
DFH	DFH	DFH	1 OF 1
DATE 08-23-25	SCALE 1" = 200'	PROJECT NO.	
ADDRESS 11300 NORTH RECREATION DRIVE			

Intermountain GeoEnvironmental Services, Inc.
12429 South 300 East, Suite 100, Draper, Utah, 84020
Phone (801) 748-4044 | Fax (801) 748-4045
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Geotechnical and Geologic Hazard Investigation
Shoreline Phase 4 - Residential Development
Hideout, Utah
IGES Project No. 00733-026

January 16, 2024

Prepared for

General Construction and Development (GCD)
3214 North University Ave. #605
Provo, Utah 84640

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Geotechnical and Geologic Hazard Investigation
Shoreline Phase 4 - Residential Development
Hideout, Utah

IGES Job No. 00733-026

January 16, 2024

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1.0 EXECUTIVE SUMMARY

This report presents the results of a geotechnical investigation completed for the Shoreline Phase 4 Development in Hideout, Utah. Based on the subsurface conditions encountered, the subject site is suitable for the proposed construction provided that the recommendations presented in this report are complied with. A brief summary of the critical observations, conclusions, and recommendations is included below:

- Based on our observations the site is covered by undocumented fill that is up to 14 feet thick and topsoil up to 2 feet below existing grade. The undocumented fill soils are comprised primarily Clayey GRAVEL (GC) that is typically medium dense to dense and Sandy Lean CLAY with gravel (CL) that is medium stiff. Native soils observed below the undocumented fill and topsoil are comprised primarily of fine-grained soils including Fat CLAY (CH), Lean CLAY (CL), Silty CLAY (CL-ML) and SILT (ML) that are typically stiff to very stiff. Some native granular soils including Silty GRAVEL (GM), Poorly Graded GRAVEL (GP), Clayey SAND (SC), and Poorly Graded SAND with clay (SP-SC) were also observed within the soil profile observed.
- Most of the soil observed is high plasticity clay and has the potential to expand when placed as fill. Measures will need to be taken to keep this soil from drying out and these soils should not be placed directly below lightly loaded slabs-on-grade
- No groundwater was encountered in any test pits completed for our investigation.
- Geologic hazards are not anticipated to adversely impact the proposed development, and the property is considered buildable from a geologic hazard perspective.
- Shallow spread or continuous wall footings should be established entirely on undisturbed native soils or entirely on a zone of structural fill extending to undisturbed native soils or bedrock; all undocumented fill soils should be removed from beneath foundations.
- Recommendations for moisture protection and surface drainage contained in Section 6.9 of this report should be implemented to minimize the potential for water to infiltrate into the underlying soils.
- Shallow spread or continuous wall footings constructed as described above may be proportioned utilizing a maximum net allowable bearing pressure of **1,800 pounds per square foot (psf)** for dead load plus live load conditions if founded on undisturbed native soils or properly placed and compacted structural fill extending to suitable native soils.

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- Flexible pavement section of 4/8/10 (inches of asphalt/road base/granular borrow) constructed on undisturbed, proof-rolled native soils or on a zone of structural fill having a minimum thickness of 24 inches is recommended for the residential roadways. A rigid pavement section of 5/12 (inches of concrete/road base) is recommended for heavy traffic areas.

Recommendations for general site grading, design of foundations, slabs-on-grade, moisture protection and soil corrosivity as well as other aspects of construction are included in this report.

NOTE: The scope of services provided within this report is limited to the assessment of the subsurface conditions at the subject site. The executive summary is provided solely for purposes of overview and is not intended to replace the report of which it is part and should not be used separately from the report.

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2.0 INTRODUCTION

2.1 PURPOSE AND SCOPE OF WORK

This report presents the results of a geotechnical and geologic hazard investigation completed for the proposed Shoreline Phase 4 Development in Hideout, Utah. The purposes of this investigation were to assess the nature and engineering properties of the subsurface soils, to provide recommendations for design and construction of foundations, slabs-on-grade, and pavement, to assess settlement, and lateral earth pressures, and to identify other geotechnical issues such as fill, shallow bedrock, collapsible soils, and groundwater. The potential for geologic hazards to adversely impact the property was also evaluated.

The scope of work completed for this study included a subsurface exploration, soil sampling, laboratory testing, engineering analyses, and preparation of this report. Our services were completed in accordance with our proposal and signed authorization.

The recommendations presented in this report are subject to the limitations presented in the **Limitations** section of this report (Section 7.1).

2.2 PROJECT DESCRIPTION

The subject property is located south of and adjacent to the Shoreline Phase 3 development in Hideout, Utah (see Figure A-1, *Site Vicinity Map*). Our understanding of the project is based on information provided by the Client. The site is located in an area where fill soils have been stockpiled over the last several years. It is understood that the site grade will be raised by up to approximately 4 feet. IGES further understands that the proposed development will include construction of roadways, residential town homes and/or single-family homes. The work scope included a geologic hazards assessment that was completed by a professional geologist. At the time of completing this report a grading plan was not available for review. It is assumed that structures will be one to three-story, lightly loaded wood-framed single-family residences with basements, founded on conventional strip and spread footings.

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3.0 METHODS OF STUDY

3.1 FIELD INVESTIGATION

As a part of this investigation, a site reconnaissance was completed and subsurface soil conditions were explored by excavating 20 exploratory test pits 8 to 16 feet below the existing site grade, with the majority of the test pits terminating at a depth of 10 to 12 feet. The approximate locations of the explorations are shown on Figure A-2 (*Site Map*) in Appendix A. A selection of photos taken at the time of our site reconnaissance is included on Figure A-3. Exploration points were placed to provide representative coverage of the site. Logs of the subsurface conditions as encountered in the explorations were recorded at the time of excavation by a member of our technical staff; these are presented as Figures A-4 through A-23 in Appendix A. A *Key to Soil Symbols and Terminology* used for the test pit logs is included as Figure A-24.

The test pits were completed using a client-provided track-hoe. Soil sampling was completed to collect representative samples of the various lithologic units observed at the site. Disturbed samples were placed in plastic baggies and relatively undisturbed soil samples were collected with the use of a 6-inch-long brass tube attached to a hand sampler driven with a 2-lb sledgehammer. All samples were transported to our laboratory to evaluate the engineering properties of the various earth materials observed. The soils were classified in accordance with the *Unified Soil Classification System* (USCS) by our field personnel. Classifications for the individual soil units are shown on the attached test pit logs (Figures A-4 through A-23).

3.2 LABORATORY INVESTIGATION

Geotechnical laboratory tests were completed on selected relatively undisturbed and bulk soil samples obtained during our field investigation. The laboratory testing program was designed to evaluate the engineering characteristics of onsite earth materials. Laboratory tests completed during this investigation include:

- Water Content (ASTM D7263)
- Unit Weight (ASTM D2216)
- Atterberg Limits (ASTM D4318)
- Particle Size Distribution (ASTM D6913)
- Maximum dry density and optimum moisture content (ASTM D698)
- Maximum dry density and optimum moisture content (ASTM D1557)
- CBR (ASTM D1883)
- Percent Swell or Collapse (ASTM D4546)

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- Unconsolidated-Undrained Triaxial Compression (ASTM D2850)
- Load to Prevent Swell
- Corrosion Testing-sulfate and chloride concentrations, pH and resistivity (ASTM D4972, D4327, D4327, C1580 and EPA 300.0)

The results of the laboratory tests are presented on the test pit logs in Appendix A (Figures A-4 through A-23) and the laboratory test results presented in Appendix B.

3.3 ENGINEERING ANALYSIS

Engineering analyses were completed using soil data obtained from the laboratory test results and empirical correlations from material density, depositional characteristics and classifications. Analyses were completed using formulas, calculations and software that represent methods currently accepted by the geotechnical industry. These methods include settlement, bearing capacity, lateral earth pressures, trench stability and pavement design. Appropriate factors of safety were applied to the results consistent with industry standards and the accepted standard of care.

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4.0 GENERALIZED SITE CONDITIONS

4.1 SURFACE CONDITIONS

The subject site has a maximum elevation of 6,380 and a minimum elevation of 6,290 feet above mean sea level, with the site sloping down to the west towards Jordanelle Reservoir. The site is located in an area where fill soils have been stockpiled for several years.

4.2 SUBSURFACE CONDITIONS

4.2.1 Earth Materials

Based on our observations the site is covered by as much as 14 feet of non-native undocumented fill deposited within the last 8 years underlain by alluvial fan deposits and colluvium. A description of each unit and corresponding thicknesses is presented below.

Undocumented Fill (Qh)

Undocumented fill (map unit Qh on Figure A-25) was observed in 15 of the 20 test pits and was observed to be up to 14 feet thick. The undocumented fill soils are comprised primarily Clayey GRAVEL (GC) that is typically medium dense to dense and Sandy Lean CLAY with gravel (CL) that is medium stiff. The undocumented fill soils were observed to include roots, gravel, trash and construction debris. The clay associated with this material was typically highly plastic and expansive when remolded as fill and tested in the laboratory.

Old Fan Alluvium Deposits (Qafo) and Young and Middle Fan Alluvium (Qafy)

The alluvial deposits were observed in each of the test pits and generally consisted of fine-grained silty and clayey soils and occasionally granular soils.

The fine-grained soils included Fat CLAY (CH), Lean CLAY (CL), Silty CLAY (CL-ML), and SILT (ML) that were generally stiff to very stiff, dry so moist and yellow brown with varying amounts of sand and gravel. Granular soils including Clayey SAND (SC), Poorly Graded SAND with clay (SP-SC), Silty GRAVEL (GM), Clayey GRAVEL (GC) and Poorly Graded GRAVEL (GP) that were typically dense to very dense, dry, moderate yellow brown.

The stratification lines shown on the enclosed exploratory logs represent the approximate boundary between soil types (Figures A-4 to A-23). The actual in-situ transition may be gradual. Due to the nature and depositional characteristics of the native soils, care should be taken in interpolating subsurface conditions between and beyond the exploration locations. Additional descriptions of these soil units are presented on the test pits logs.

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4.2.2 Groundwater

Groundwater was not encountered in the test pits completed for this site. However, due to the local topography seasonal groundwater and/or springs may be encountered. Seasonal fluctuations in precipitation, surface runoff from adjacent properties, or other on or offsite sources may increase moisture conditions. Groundwater conditions can be expected to rise or fall several feet seasonally depending on the time of year. Based on our field investigation, we anticipate that groundwater will not impact the proposed construction.

4.2.3 Swelling Soils

One Collapse/Swell Potential test was completed on a representative, undisturbed sample of native clayey soil under a load of 2,000 psf which swelled 2.9% after being inundated with water.

Five Load to Prevent Swell tests were also completed on representative samples of clayey soils obtained from both the native and the undocumented fill soils. To complete this test, each of these samples were removed from the bag and allowed to dry out in the laboratory for a period of approximately 3 days. The soils were then remolded to a dry density comparable to 95 percent of the maximum dry density (modified proctor – ASTM D1557) and inundated with water. The load required to prevent the soils from swelling was recorded. The results are presented in Table 4.2.3A: Load to Prevent Swell Summary Results.

Table 4.2.3A
Load to Prevent Swell Summary Results

Location	Depth (ft)	Load to Prevent Swell (psf)	Soil Type
TP-1	7	3,390	Sandy Lean CLAY (CL)
TP-6	3	6,600	Undocumented Fill
TP-12	12	5,610	Clayey GRAVEL (GC)
TP-13	15	22,400	Clayey SAND (SC)
TP-20	13	7,500	Undocumented Fill

Based on the collapse/swell testing and the load to prevent swell testing, it is our opinion that the existing onsite soils have a moderate to high potential to expand following an increase in moisture conditions.

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4.2.4 Pavement Subgrade Support

One California Bearing Ratio (CBR) test was competed on a sample of the near surface native soils that may be used for pavement subgrade. Based on the test results from TP-1 at 7 feet a CBR value of 7.1 was obtained at 0.2 inches of penetration.

4.2.5 Chemical Testing

Chemical testing was completed as a part of this investigation on two representative samples of the near-surface soils. The test results are summarized in Table 4.2.5A.

Table 4.2.5A
Summary of Corrosion Testing

Location	Depth (feet)	pH	Soluble Chloride (ppm)	Soluble Sulfate (ppm)	Minimum Resistivity (ohm-cm)
TP-1	7	8.3	< 50	< 50	1,343
TP-6	3	8.1	< 50	< 50	1,452

4.2.6 Strength of Earth Materials

Three Unconsolidated Undrained Triaxial Compression Tests were completed on undisturbed soil samples. Table 4.2.6A provides a summary of these lab test results. The complete results are presented in Appendix B.

Table 4.2.6A
Summary of Unconsolidated Undrained Triaxial Test Results

Location	Depth (ft)	Shear Strength (psf)
TP-3	7	2,216
TP-9	7	2,993
TP-18	3	680

Two Direct Shear Tests were completed on relatively undisturbed samples. A summary of the results are presented below in Table 4.2.6B. The complete test results are provided in Appendix B.

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Table 4.2.6B
Summary of Direct Shear Test Results

Location	Depth (ft)	Friction Angle (ϕ)	Cohesion (psf)
TP-8	5	34	524
TP-15	4	38	180

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5.0 GEOLOGIC CONDITIONS

5.1 GEOLOGIC SETTING

Biek (2022) provides the most recently published geologic mapping across the property. This 1:24,000-scale map serves as the base map for Figure A-25, *Regional Geology Map*. According to Biek (2022; see Figure A-25), the property is underlain by four distinct geologic units: artificial fill (map unit Qh), young and middle fan alluvium (map unit Qafy), old fan alluvium (map unit Qafo), and alluvium and colluvium deposits (Qac).

The artificial fill (map unit Qh) is mapped in the southeastern corner of the property and is described as historical "Engineered fill and general borrow material used mostly for major highways and secondary roads that cross small drainages…fill of variable thickness and composition should be anticipated in all developed or disturbed areas; mapped only where fill is typically 6 feet (2 m) or more thick."

The old fan alluvium (map unit Qafo) is mapped as covering the majority of the property. These deposits are described as Upper to Middle Pleistocene-aged "Poorly to moderately sorted, weakly to non-stratified, clay- to boulder-size sediment deposited principally as debris flows and debris floods; deeply incised by modern drainages, but still exhibits characteristic fan morphology; upper parts of fans locally receive debris-flow and colluvial sediment from adjacent slopes; characterized by well-developed secondary calcium carbonate in upper part of deposits; exposed thickness as much as several tens of feet."

The young and middle fan alluvium (map unit Qafy) is mapped across the north-central portion of the property and are described as Holocene to Upper Pleistocene-aged deposits that are "Similar to young fan alluvium (Qaf_1), but forms both active depositional surfaces (Qaf_1 equivalent) and low-level, typically inactive surfaces incised by small streams; deposited principally as debris flows and debris floods, but colluvium locally constitutes a significant part adjacent to range fronts; upper parts of fans are commonly incised; probably less than 40 feet (12 m) thick."

The alluvium and colluvium deposits (map unit Qac) are mapped in a drainage in the south-central portion of the property, and are described as Holocene to Upper Pleistocene-aged "Poorly to moderately sorted, generally poorly stratified, clay- to boulder-size, locally derived sediment (colluvium) deposited in swales, small drainages, and the upper reaches of larger ephemeral streams by slope-wash and creep processes; sediment is locally reworked by ephemeral streams, which is not differentiated here due to map scale; generally less than 30 feet (9 m) thick."

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Site reconnaissance and logging of the test pits performed by IGES geologists indicated that the majority of the property is underlain by undocumented fill (Qh), with old and young fan alluvium observed to be largely consistent with the mapping of Biek (2022; see Figure A-25). As a result, a local geology map has not been created for this study.

5.2 GEOLOGIC HAZARD ASSESSMENT

Geologic hazard assessments are necessary to determine the potential risk associated with particular geologic hazards that are capable of adversely affecting a proposed development area. As such, they are essential in evaluating the suitability of an area for development and provide critical data in both the planning and design stages of a proposed development. The following is a summary of the geologic hazard assessment for the subject property.

5.2.1 Seismicity and Faulting

Surface-fault-rupture is a vertical or horizontal offset of the ground surface during and after a seismic event. The Quaternary Fault and Fold Database of the United States (USGS and UGS, 2006) shows the Bald Mountain Fault trace to trend southwest-northeast approximately 2.2 miles southwest of the property. The fault is classified as being undifferentiated Quaternary-aged with an average slip-rate of less than 0.2 mm/year. Deposits mapped within the boundaries of the fault are unfaulted within deposits less than 125,000 years old (Hecker, 1993). Therefore, the Bald Mountain Fault is considered to be inactive.

Similarly, an inactive (bedrock) northeast-southwest trending fault trace is mapped by Biek (2022; see Figure A-25) as terminating at approximately the northeastern property boundary and is shown to be concealed by the young fan alluvium (map unit Qafy).

The closest mapped active (Holocene-aged) fault to the property is the Salt Lake Segment of the Wasatch Fault Zone, located approximately 20.1 miles west of the property (USGS and UGS, 2006). Given this information, the risk associated with surface-fault-rupture for the property is considered low. Given this information, the surface-fault-rupture hazard is not anticipated to adversely impact the proposed development.

Based upon the distance of the property from the Salt Lake Segment, strong to very strong ground shaking may be possible in the event of an earthquake along the Salt Lake Segment throughout the lifetime of the development (UGS, 2024).
Following the criteria outlined in the 2018 International Building Code (IBC, 2018), spectral response at the site was evaluated for the risk-targeted *Maximum Considered*

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Earthquake (MCE_R), which represents the spectral response accelerations in the direction of maximum horizontal response represented by a 5% damped acceleration response spectrum that equates to a 1% probability of building collapse within a 50-year period. The MCE_R spectral accelerations were determined based on the location of the site using the *ASCE-7 Hazard Tool*; this software incorporates seismic hazard maps depicting probabilistic ground motions and spectral response data developed for the United States by the U. S. Geological Survey. These maps have been incorporated into the *International Building Code* (IBC) (International Code Council, 2018).

To account for site effects, site coefficients that vary with the magnitude of spectral acceleration and *Site Class* are used. Site Class is a parameter that accounts for site amplification effects of soft soils and is based on the average shear wave velocity of the upper 100 feet (30 meters, Vs_{30}); site classifications are identified in Table 5.2.1A.

Table 5.2.1A
Site Class Categories

Site Class	Earth Materials	Shear Wave Velocity Range (Vs_{30}) ft/s
A	Hard Rock	>5,000
B	Rock	2,500-5,000
C	Very Dense Soil/Soft Rock	1,200-2,500
D	Stiff Soil	600-1,200
E	Soft Soil	<600
F	Special Soils Requiring Site-Specific Evaluation (e.g. liquefiable)	n/a

Based on our field exploration and our understanding of the geology in this area, the native soils at the site (alluvium and colluvium) are underlain by Triassic-aged mudstone and sandstone of the upper member of the Ankareh Formation and would likely classify as Site Class C. However, lacking site-specific shear wave velocity measurements, IBC requires a conservative approach, thus IGES has *assumed* shear wave velocities for Site Class D conditions. Based on default Site Class D site coefficients, the short- and long-period *Design Spectral Response Accelerations* are presented in Table 5.2.1B. For geotechnical practice, the geo-mean peak ground acceleration (PGA_M) is presented in Table 5.2.1C.

It should be noted that, for certain structures, particularly those with a longer fundamental natural period, a site-specific seismic hazard analysis may be required; the

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Structural Engineer should review ASCE-7-16 11.4.8 to assess whether Exception #2 is applicable for their structure. If the simplified approach and mapped spectral accelerations as allowed by Exception #2 are not applicable to this project, IGES should be contacted regarding the completion of a site-specific seismic hazard analysis, which would necessarily include on-site shear wave velocity measurements.

Table 5.2.1B
Spectral Accelerations for MCE, Risk-Targeted Values (Structural)

Mapped B/C Boundary S_a (g)		Site Coefficient (Site Class D*)		Design Sa (g)		
Ss	S_1	F_a	F_v	PGA	S_{DS}	S_{D1}
0.53	0.188	1.376	2.224	0.194	0.486	0.279

*assumed
1) T_L=8
2) Exception #2 taken, see ASCE-7-16 11.4.8-2, a site-specific ground-motion hazard analysis may be required for some structures

Table 5.2.1C
Spectral Accelerations for MCE, Geo-Mean Values (Geotechnical)

Mapped B/C Boundary PGA (g)	Site Coefficient F_{PGA} (Site Class D*)	PGA_M (g)
0.233	1.367	0.319

*assumed

5.2.2 Debris-Flow and Alluvial Fan Flooding

Debris-flows typically deposit on existing alluvial fans located at the mouth of active canyons, while flooding typically occurs in drainage channels and lowland areas within a drainage basin. The north-central portion of the property has been mapped as containing young and middle fan alluvium (Qafy; see Figure A-25), and these deposits were observed in the test pits excavated for this study. The ephemeral drainage that crosses the southernmost portion of the property has been mapped as an area with stream flooding potential (Hylland, et al., 1995). However, most recently, FEMA (2012) shows the property to be located within Zone X, denoted as an area outside of the 0.2% (500-year) annual chance floodplain.

It is likely that the FEMA (2012) reconsideration of the drainage is due to the large (~150 foot tall) fill slope constructed for Highway 248 that effectively cuts off access to the head of the drainage and therefore limits the active portion of the drainage upslope of the property to extend approximately 0.2 miles to the western side of Longview Drive,

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present at the base of the Highway 248 fill slope. Similarly, the drainage that produced the young fan alluvium has similarly been cut off by the Highway 248 road embankment. Given this information, debris-flows are not anticipated to adversely impact the proposed development.

Nevertheless, the southernmost portion of the site located within the ephemeral drainage may be subject to localized flooding and should be considered in the general planning stages. An adequate grading and drainage plan should further reduce the flood hazard risk.

5.2.3 Rockfall

The property is on a gradual slope down to the west, and no bedrock outcrops are located immediately upslope of the property. As such, the rockfall hazard is not anticipated to adversely impact the proposed development.

5.2.4 Avalanche

Avalanches are flows of snow that occur when there is a mechanical failure of either wet or dry snow. They can occur as clouds of moving material or as sliding slabs of snow. Avalanches are typically initiated on slopes of 30 to 45 degrees. Though drainages with slopes greater than 30 degrees are present upslope of the property, the thick fill slope associated with Highway 248 will act as a barrier to potential avalanches emanating from the drainages. Additionally, no obvious evidence of recent avalanches or avalanche paths was observed on the property. Therefore, the avalanche hazard is not anticipated to adversely impact the proposed development.

5.2.5 Landslides

No landslides have been mapped on the subject property (Biek, 2022; Elliott and Harty, 2010), and Hylland, et al. (1995) shows the property to be designated as having a low landslide hazard risk except within the southern ephemeral drainage, in which case the risk is moderate due to the presence of steeper slopes. No evidence of landsliding was observed on the surface or in the subsurface of the property as part of this investigation. Given this data, the landslide hazard is not anticipated to adversely impact the proposed development.

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5.2.6 Shallow Groundwater

The Park City East topographic quadrangle (USGS, 2020), Biek (2022), and Hylland, et al. (1995) all show two springs located immediately west of the southwestern margin of the property that fill an existing pond. However, no groundwater was encountered in any of the test pits excavated for this study, excavated to depths of up to 16 feet below existing grade. Given this data, the possibility of shallow groundwater conditions remains, but it is low for the southern portion of the property within the existing drainage.

5.3 GEOLOGIC CONCLUSIONS AND RECOMMENDATIONS

5.3.1 Conclusions

Based upon the data collected and reviewed as part of this assessment, IGES makes the following conclusions regarding the geologic hazards present at the Shoreline Phase 4 property:

- The property does not appear to have geological hazards that would adversely affect the development as currently proposed. As such, the property is considered suitable for development from a geologic hazard perspective, provided that the recommendations provided in this report are incorporated into the design and construction of the structures.

- The existing surface geology on the property is consistent with what was previously mapped by Biek (2022), being largely undocumented fill overlying fine-grained old fan alluvium and coarse-grained young fan alluvium.

- Surface-fault-rupture, rockfall, debris-flow, avalanche, and landslide hazards are not anticipated to adversely impact the proposed development. Though there is some potential for localized flooding and shallow groundwater hazards to adversely impact the southern portion of the property within the existing drainage, it is anticipated that appropriate mitigation measures will be implemented to reduce the hazard risk to an acceptable level.

5.3.2 Geologic Recommendations

Given the findings of the geologic hazards assessment, IGES recommends the following:

- An IGES engineering geologist should observe all construction cuts to assess the exposed subsurface materials and evaluate them for potential adverse impacts to roadways and other aspects of the proposed development.

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- Because the southern portion of the property is located within an ephemeral drainage, appropriate grading and drainage controls should be designed by the project civil engineer and implemented to appropriately allow stormwater to pass through the development in the event of localized flash flooding, snowmelt, or long-duration storm events.

- For residences to be located within the ephemeral drainage in the southern portion of the property that may encounter shallow groundwater conditions, the home builder may give consideration to installing foundation drains that can drain by gravity to a daylighted area, however, the risk is low for groundwater to impact the proposed construction.

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6.0 ENGINEERING CONCLUSIONS AND RECOMMENDATIONS

6.1 GENERAL CONCLUSIONS

Based on the subsurface conditions encountered at the site, the subject site is suitable for the proposed development provided that the recommendations presented in this report are incorporated into the design and construction of the project. IGES understands that up to 4 feet of structural fill will be placed before constructing roadways and homes. We recommend that as part of the site grading process all undocumented fill, topsoil or otherwise unsuitable soils currently present at the site be removed prior to placing the structural fill. We also recommend that IGES be on site at key points during construction to see that the recommendations in this report are implemented. Shallow spread or continuous wall footings should be established entirely on suitable native soils or on a zone of properly placed and compacted structural fill extending to suitable, undisturbed native soils. IGES recommends that the structural fill consist of non-expansive soils and be compacted to at least 97% of the maximum dry density and be compacted at or above the optimum water content (Section 6.2.4). The client should closely follow the moisture protection and surface drainage recommendations contained in Section 6.9 of this report to minimize the potential for water to infiltrate underlying soils.

The following sub-sections present our recommendations for general site grading, design of foundations, slabs-on-grade, lateral earth pressures, moisture protection and preliminary soil corrosion.

6.2 EARTHWORK

Prior to the placement of foundations, general site grading is recommended to provide proper support for foundations, exterior concrete flatwork, and concrete slabs-on-grade. Site grading is also recommended to provide proper drainage and moisture control on the subject property.

6.2.1 General Site Preparation

Prior to placing structural fill at the site, any existing surface vegetation, debris, or undocumented fill should be removed. The exposed native soils should then be proof-rolled with heavy rubber-tired equipment, such as a loader, and any soft areas identified be removed and replaced with structural fill. An IGES representative should observe the site preparation and grading operations to assess whether the recommendations presented in this report have been complied with.

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6.2.2 Excavations

Following removal of the undocumented fill soils, the exposed, underlying native soils should be grubbed to remove any vegetation that was previously buried along with the topsoil containing heavy organics. The native soils should then be benched if the slope is steeper than 5H:1V to create horizontal planes to receive the anticipated structural fill.

6.2.3 Excavation Stability

The contractor is responsible for site safety, including all temporary slopes and trenches excavated at the site and design of any required temporary shoring. The contractor is responsible for providing the "competent person" required by OSHA standards to evaluate soil conditions. Soil types are expected to consist of *Type C* soils (primarily undocumented fill soils) in the top 14 feet. Close coordination between the competent person and IGES should be maintained to facilitate construction while providing safe excavations.

Based on Occupational Safety and Health (OSHA) guidelines for excavation safety, trenches with vertical walls up to 5 feet in depth may be occupied. Where very moist soil conditions, or groundwater is encountered, or when the trench is deeper than 5 feet, we recommend a trench-shield or shoring be used as a protective system to workers in the trench. Sloping of the sides at 1.5H:1V (34 degrees) in *Type C* soils may be used as an alternative to shoring or shielding.

6.2.4 Structural Fill and Compaction

All fill placed for the support of structures, flatwork, embankments or pavements, should consist of structural fill. Due to the potential for expansion, IGES recommends that the clayey undocumented fill soils and the native clayey soils, not be used as structural fill beneath or adjacent to lightly loaded structural elements such as concrete sidewalks, driveways and pavements. They should also not be used within 2 feet below any foundations. However, if the owner chooses to use native clayey soils and existing onsite clayey undocumented fill soils as structural fill, it will be with increased risk. If these sols are used as structural fill, they should be compacted with the moisture content maintained at or above the optimum moisture content (OMC) based on the modified proctor (ASTM D1557). If the clayey soils are used as structural fill and the soil is compacted dry of the OMC, the risk of soils expanding and causing damage to these lightly loaded structural elements or other aspects of the project increase with an increase in moisture after compaction.

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All structural fill should be free of vegetation and debris and contain **no rocks larger than 4 inches in nominal size** (6 inches in greatest dimension). Topsoil may not be used as structural fill; this material must be kept segregated from other soils intended to be used as structural fill.

All structural fill should be placed in maximum 6-inch loose lifts if compacted by small hand-operated compaction equipment, maximum 8-inch loose lifts if compacted by light-duty rollers, and maximum 12-inch loose lifts if compacted by heavy duty compaction equipment that is capable of efficiently compacting the entire thickness of the lift. These values are *maximums*; the Contractor should be aware that thinner lifts may be necessary to achieve the required compaction criteria. We recommend that all structural fill be compacted on a horizontal plane, unless otherwise approved by IGES. Structural fill placed beneath footings and pavements should be compacted to at least 95 percent of the maximum dry density (MDD) as determined by ASTM D-1557 if the overall thickness of the fill section is less than 7 feet; if the thickness is greater than 7 feet, the compaction requirement should be increased to 97 percent of the MDD. The moisture content should be at or slightly above the OMC for all structural fill – compacting dry of optimum is discouraged, especially if the onsite soils are used as structural fill as described above. Any imported fill materials should be approved by IGES prior to importing. Also, prior to placing any fill, the excavations should be observed by IGES to confirm that unsuitable materials have been removed, such as soft, porous, or organic soil. In addition, proper grubbing, grading and benching should precede placement of fill, as described in this report.

All utility trenches backfilled below pavement sections, curb and gutter and concrete flatwork, should be backfilled with structural fill compacted to at least 95 percent of the MDD as determined by ASTM D-1557. All other trenches, including landscape areas, should be backfilled and compacted to a minimum of 90 percent of the MDD (ASTM D-1557).

Specifications from governing authorities having their own precedence for backfill and compaction should be followed where applicable.

6.3 FOUNDATIONS

Shallow spread or continuous wall footings are planned to be located within the structural fill material placed on site. All footing excavations should be observed by IGES or other qualified geotechnical engineer prior to constructing footings.

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Shallow spread or continuous wall footings constructed on approved and properly placed and compacted structural fill or on undisturbed native soils or bedrock may be proportioned utilizing a maximum net allowable bearing pressure of **1,800 pounds per square foot (psf)** for dead load plus live load conditions. A one-third increase may be used for transient wind and seismic loads. All fill beneath the foundations should consist of structural fill and should be placed and compacted in accordance with our recommendations presented in Section 6.2.4 of this report.

All foundations exposed to the full effects of frost should be established at a minimum depth of 42 inches below the lowest adjacent final grade. Interior footings, not subjected to the full effects of frost (i.e., a continuously heated structure), may be established at higher elevations, however, a minimum depth of embedment of 12 inches is recommended for confinement purposes. The minimum recommended footing width is 20 inches for continuous wall footings and 36 inches for isolated spread footings.

6.4 SETTLEMENT

Static settlement of properly designed and constructed conventional foundations, founded as described above, are anticipated to be on the order of 1 inch or less. Differential settlement is expected to be half of total settlement over a distance of 30 feet.

6.5 EARTH PRESSURES AND LATERAL RESISTANCE

Lateral forces imposed upon conventional foundations due to wind or seismic forces may be resisted by the development of passive earth pressures and friction between the base of the footing and the supporting soils. In determining the frictional resistance, a coefficient of friction of 0.42 should be used for concrete in contact with native soil or imported granular structural fill (Sand and Gravel).

Ultimate lateral earth pressures from backfill acting against retaining walls and buried structures may be computed from lateral pressure coefficients or equivalent fluid densities. In general, foundation and other walls that are fixed at the top should be designed using at-rest lateral earth pressures. Foundation walls for buried or partially buried structures may also be designed for active pressures if no more than 8 feet of the wall extends below grade and laterally supported by flexible diaphragms. Retaining walls allowed to rotate at the top (unfixed) can be designed for active pressures based on the International Building Code (IBC, 2018).

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Based on an internal angle of friction of 34 degrees, the ultimate lateral earth pressures for native soil acting against buried structures and footings may be computed from the lateral pressure coefficients or equivalent fluid densities presented in Table 6.5A:

Table 6.5A
Recommended Lateral Earth Pressure Coefficients for Static Conditions

Condition	Lateral Pressure Coefficient	Equivalent Fluid Density (pounds per cubic foot)
Active*	0.28	33
At-rest**	0.44	51
Passive*	3.53	410

* Based on Coulomb's equation
** Based on Jaky

These values should be used with an appropriate factor of safety against overturning and sliding. A value of 1.5 is typically used. Additionally, if passive resistance is calculated in conjunction with frictional resistance, the passive resistance should be reduced by ½.

The coefficients and densities presented in the table above for static conditions assume no buildup of hydrostatic pressures, a vertical wall face and flat back slope. The force of the water should be added to the presented values if hydrostatic pressures are anticipated. Proper grading and other drainage recommendations provided previously in this report will help to reduce the potential for buildup of hydrostatic pressures if implemented.

Clayey soils drain poorly and may swell upon wetting, thereby greatly increasing lateral pressures acting on earth retaining structures; therefore, clayey soils with a potential for swelling should not be used as retaining wall backfill. Backfill should consist of soil with an Expansion Index (EI) less than 20.

6.6 RETAINING WALLS

The soils data provided in this report may be used for retaining wall design. Retaining wall design would ordinarily be presented in a separate submittal (*design package*) that contains construction drawings and specifications for each specific wall. The design package should include elevation (profile) drawings, stationing, section drawings and construction specifications for the particular wall type and planned accessories such as fencing. Drawings should be completed so that accurate construction layout can be provided.

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6.7 CONCRETE SLAB-ON-GRADE CONSTRUCTION

To minimize settlement and cracking of slabs, and to aid in drainage beneath the concrete floor slabs, all concrete slabs should be founded on a minimum 4-inch layer of clean gravel overlying properly prepared subgrade which includes non-expansive native soils, native soils that are kept moist or a zone of non-expansive structural fill placed in accordance with Section 6.2.4 of this report that is at least 24 inches thick. The 4-inch layer of gravel should consist of free-draining gravel with no more than 5 percent passing the No. 200 mesh sieve that should be vibrated in place for densification.

All concrete slabs should be designed to minimize cracking as a result of shrinkage. Consideration should be given to reinforcing the slab with a welded wire fabric, re-bar, or fiber mesh. Slab reinforcement should be designed by the structural engineer; however, as a minimum, slab reinforcement should consist of 4'' × 4'' (W4.0×W4.0) welded wire mesh within the middle third of the slab. We recommend that concrete be tested to assess that the slump and/or air content are in compliance with the plans and specifications. We recommend that concrete be placed in general accordance with the requirements of the American Concrete Institute (ACI). A Modulus of Subgrade Reaction of **130 psi/inch** may be used for design.

Our experience indicates that use of reinforcement in slabs and foundations can generally reduce the potential for cracking resulting from drying and shrinkage. However, some cracking can be expected as the concrete cures. Minor cracking is considered normal; however, it is often aggravated by a high water/cement ratio, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. The use of low slump concrete can reduce the potential for shrinkage cracking; saw cuts in the concrete at strategic locations can help to control and reduce undesirable shrinkage cracks.

6.8 PAVEMENT

Based on a CBR value of 7.1 obtained in our laboratory, near-surface soils at the site can be expected to provide fair pavement support. Anticipated traffic volumes were not available at the time this report was prepared, however, IGES has assumed an equivalent single axle load (ESAL) of 250,000 over a 30-year design life; IGES has assumed that the majority, if not all, of construction traffic has already occurred. Based on the information provided, the above-mentioned assumptions and our analysis, IGES has prepared the following pavement section to be used to support anticipated traffic loads for the

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residential roadways and are summarized in the following table. IGES recommends at the time of subgrade preparation, a member of our technical staff observe the subgrade.

Table 6.8A
Flexible (Asphalt) Pavement Section

Asphalt Concrete (in.)	Untreated Base Course (in.)	Granular Borrow (in.)
4	**8**	**10**

Asphalt has been assumed to be a high stability plant mix; base course material should be composed of crushed stone with a minimum CBR of 70. Asphalt should be compacted to a minimum density of 96% of the Marshall value; the base course, granular borrow and all structural fill placed below pavement should be compacted to at least 95% of the MDD and within 2% of the optimum moisture content as determined by ASTM D-1557 (Modified Proctor).

All pavement sections should be constructed over properly prepared subgrade which includes non-expansive native soils, native soils that are kept moist, or a zone of non-expansive structural fill placed in accordance with Section 6.2.4 of this report that is at least 24 inches thick.

It is our experience that pavement in areas where vehicles frequently turn around, stop, backup, load and unload, including the entrance and exit areas and dumpster areas often experience more distress. If the owner wishes to prolong the life of the pavement in these areas, consideration should be given to using a Portland cement concrete (rigid) pavement in these areas. IGES recommends that the follow pavement section be used for the high traffic areas:

Table 6.8B
Rigid Pavement Section – Heavy Traffic Areas

Concrete (in.)	Untreated Base Course (in.)
5	**12**

For the rigid pavement section design, IGES has assumed a flexural strength of the concrete at 28 days of at least 600 psi, road base with a minimum CBR value of 70 and a load transfer coefficient of 2.7 for doweled joints with edge support. Concrete should consist of a low slump, low water cement ratio mix, with a minimum 28-day compressive

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strength of 4,000 psi. The base course should be compacted to at least 95% of the MDD as determined by ASTM D-1557.

The pavement section thicknesses above assume that there is no mixing over time between the road base and structural fill or native subgrade below. In order to prevent mixing or fines migration, and thereby prolong the life of the pavement section, a light-weight non-woven geosynthetic fabric should be placed between the native soils and the granular borrow.

6.9 MOISTURE PROTECTION AND SURFACE DRAINAGE

As part of good construction practices, moisture should not be allowed to infiltrate into the soils in the vicinity of the foundations. Also, in areas with large fills, which we have assessed is most of this site, storm water should not be allowed to infiltrate into the fill soil. As such, design strategies to minimize ponding and infiltration near structures and fill should be implemented as follows:

1. Backfill around foundations should consist of native soils placed in maximum 12-inch loose lifts, moisture conditioned to within 2 percent of the optimum moisture content and compacted to approximately 90 percent of the maximum dry density as established by the Modified Proctor (ASTM D1557) in landscaped areas and a minimum of 95 percent beneath concrete slabs or other structural elements.
2. Compacting by means of injecting water or “jetting” is not recommended.
3. Rain gutters should be installed and maintained to collect and discharge all roof runoff a minimum of 10-feet from foundation elements or as far away as is practically possible. If 10-feet cannot be achieved then a pipe, swale or other conveyance feature should be installed to carry the roof runoff immediately away from the foundation.
4. The ground surface within 10-feet of the foundations should be sloped to drain away from structure with a minimum fall of 6 inches (5%). If 10-feet cannot be achieved, then the ground surface should be sloped to the property line or as far as practical and a conveyance feature used to carry the surface runoff to the front or rear of the property.
5. All pressurized irrigation lines and valves should be placed outside the limits of the foundation backfill. It is recommended that Desert landscaping or xeriscaping be used in this zone. Landscaping and irrigation should be planned in accordance with the localscapes website (http://localscapes.com).

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6.10 PRELIMINARY SOIL CORROSION POTENTIAL

Chemical testing was completed as a part of this investigation on a representative sample of the near-surface soils. The test results are discussed in Section 4.2.5 of this report and are presented in Appendix B. Based on the test results; the following recommendations are made:

- Site soils are expected to exhibit *severely corrosivity* with respect to steel in direct contact with site soils. Consideration should be given to retaining the services of a qualified corrosion engineer to provide an assessment of any metal that will be in contact with native soils.

- Site soils are expected to exhibit *low corrosivity* with respect to concrete in direct contact with site soils. Conventional Type I/II Portland cement should be used for all concrete in contact with site soils.

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7.0 CLOSURE

7.1 LIMITATIONS

The concept of risk is a significant consideration of geotechnical analyses. The analytical means and methods used in performing geotechnical analyses and development of resulting recommendations do not constitute an exact science. Analytical tools used by geotechnical engineers are based on limited data, empirical correlations, engineering judgment and experience. As such the solutions and resulting recommendations presented in this report cannot be considered risk-free and constitute IGES's best professional opinions and recommendations based on the available data and other design information available at the time they were developed. IGES has developed the preceding analyses, recommendations and designs, at a minimum, in accordance with generally accepted professional geotechnical engineering practices and care being exercised in the project area at the time our services were completed. No warrantees, guarantees or other representations are made.

The information contained in this report is based on limited field testing and understanding of the project. The subsurface data used in the preparation of this report were obtained largely from the explorations made for this project. It is very likely that variations in the soil, rock, and groundwater conditions exist between and beyond the points explored. The nature and extent of the variations may not be evident until construction occurs and additional explorations are completed. If any conditions are encountered at this site that are different from those described in this report, IGES must be immediately notified so that we may make any necessary revisions to recommendations contained in this report. In addition, if the scope of the proposed construction or grading changes from those described in this report, our firm must also be notified.

This report was prepared for our client's exclusive use on the project identified in the foregoing. Use of the data, recommendations or design information contained herein for any other project or development of the site not as specifically described in this report is at the user's sole risk and without the approval of IGES, Inc. It is the client's responsibility to see that all parties to the project including the designer, contractor, subcontractors, etc. are made aware of this report in its entirety. The use of information contained in this report for bidding purposes should be done at the contractor's option and risk.

We recommend that IGES be retained to review the final design plans, grading plans and specifications to determine if our engineering recommendations have been properly incorporated in the project development documents. We also recommend that IGES be retained to evaluate, construction performance and other geotechnical aspects of the projects as construction initiates and progresses through its completion.

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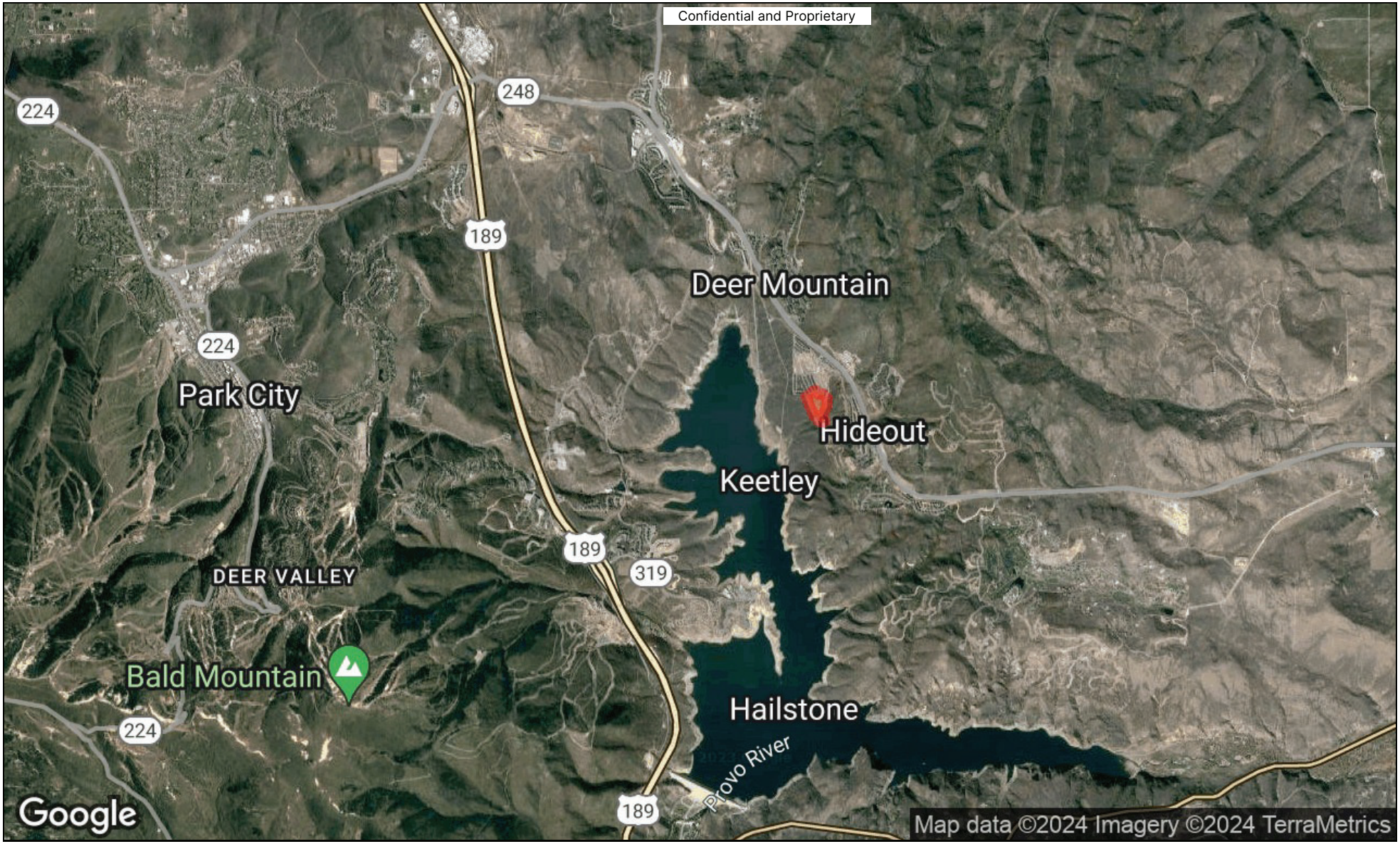
APPENDIX A



IGES EST. 1998	IGES Draper, UT	Geotechnical Investigation GCD – Shoreline Phase 4 Wasatch County, Utah Project Number – 00733-026	Project location	**Site Vicinity Map**	**Figure** **A-1**

IGES EST. 1998	IGES Draper, UT	Geotechnical Investigation GCD – Shoreline Phase 4 Wasatch County, Utah Project Number – 00733-026	Project location Soil borings	**Site Map**	**Figure** **A-2**

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3a

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3b

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3c

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3d

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3e

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3f

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3g

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3h

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3i

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

SITE PHOTOS
October 10-11, 2023

Project Number – 00733-026

Figure

A-3j

GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	8 feet		
Location...	Approximate	Elevation:	~6303.9'		
Project No.:	00733-026	Coordinates:	40.64300, -111.40644		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: Dry Density (PCF)
0				GC	**Undocumented Fill**; **Clayey GRAVEL with sand** - medium dense, moist brown		
	6300				4.0		
5				CL	**Native**; **Sandy Lean CLAY** - very stiff, moist, medium yellow brown, with occasional gravel	24.1	98.4
					8.0		

Bottom of TP, No GW encountered

Liquid Limit 0 50 100
Plastic Limit 0 50 100
Moisture Content 0 50 100

Graphics Legend

GC | CL | ST - Shelby Tube | Bulk - Bulk Sample

FIGURE
A-4

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GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	10 feet		
Location...	Approximate	Elevation:	~6302.8'		
Project No.:	00733-026	Coordinates:	40.64263, -111.40571		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0					**Native Topsoil**; **Sandy Lean Clay** - soft, slightly moist dark yellow brown, with pin holes (2.0)			
	6300			CL-ML	**Sandy Silty CLAY** - very stiff, moist, medium yellow brown, with occasional gravel			
5						6.2	42.9	22-16-6
	6295							
10					(10.0)	13.9	56.3	

Liquid Limit 0 50 100
Plastic Limit 0 50 100
Moisture Content 0 50 100

Bottom of TP, No GW encountered

Graphics Legend

null | CL-ML | Bag | -

FIGURE

A-5

GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	10 feet		
Location...	Approximate	Elevation:	~6320.3'		
Project No.:	00733-026	Coordinates:	40.64317, -111.40606		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
0	6320			GC	**Undocumented Fill**; **Clayey GRAVEL with sand** - medium dense, moist				
					3.5				
					Native Topsoil; **Lean CLAY with sand** - soft, moist blackish brown				
5	6315				5.0				
				CH	**Lean to Fat CLAY** - medium stiff, moist brown to grey, oily sheen, with some sand scattered throughout	26.4	92.7	85.1	66-19-47
10	6310				10.0				

Lab

Liquid Limit 0 50 100
Plastic Limit 0 50 100
Moisture Content 0 50 100

Bottom of TP, No GW encountered

Graphics Legend

GC | Lean Clay | CH | ST - Shelby Tube

FIGURE
A-6

GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	16 feet		
Location...	Approximate	Elevation:	~6292.6'		
Project No.:	00733-026	Coordinates:	40.64382, -111.40706		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines
0					**Undocumented Fill**; **Clayey Gravel with sand** - Medium dense, moist and moderate brown. low plasticity. Sand is fine grained		
	6290						
5							
	6285						
10							
	6280						
					14.0		
15				CL	**Native**; **Sandy Lean CLAY** - very stiff, moist, moderate yellow brown sand is fine grained to course grained. Trace gravels with low to moderate plasticity	15.7	82.2
					16.0		

Bottom of TP, No GW encountered

Liquid Limit 0 50 100
Plastic Limit 0 50 100
Moisture Content 0 50 100

Graphics Legend

null CL Bag -

FIGURE

A-7

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GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	12 feet		
Location...	Approximate	Elevation:	~6310.4'		
Project No.:	00733-026	Coordinates:	40.64372, -111.40637		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0	6310				**Undocumented Fill**; **Clayey Gravel with sand** - medium dense, moist, Sand is fine grained			
5	6305				5.0			
				CL	**Native**; **Sandy Lean CLAY** - very stiff, moist, moderate yellow brown, sand is fine grained to course grained. Trace gravels with low to moderate plasticity	14.4	54	33-17-16
10	6300					17	56.2	
					12.0			

Lab: Liquid Limit ● 0 50 100; Plastic Limit ● 0 50 100; Moisture Content ◆ 0 50 100

Bottom of Test Pit No GW encountered

Graphics Legend

null | CL | Shovel | Bag

FIGURE

A-8

GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	16 feet		
Location...	Approximate	Elevation:	~6311.9'		
Project No.:	00733-026	Coordinates:	40.64430, -111.40695		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0					**Undocumented Fill**; **Clayey Gravel with sand** - medium dense, slightly moist to moist, moderate brown	13.8	49.2	35-17-18
	6310							
5	6305							
					9.5			
10				CL	**Native Topsoil**; **Lean CLAY with sand** - moist dark brown, organic odor 10.5			
	6300			GM	**Silty GRAVEL** - very dense, slightly moist light yellowish brown			
15					15.0			

Bottom of TP, No GW encountered

Graphics Legend

null | CL | GM | Bulk - Bulk Sample

FIGURE

A-9

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GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	15 feet		
Location...	Approximate	Elevation:	~6317.9'		
Project No.:	00733-026	Coordinates:	40.64425, -111.40632		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines	Liquid Limit / Plastic Limit / Moisture Content (0–50–100)
0					**Undocumented Fill**; **Clayey GRAVEL with sand** - medium dense, moist			
	6315							
5				GC				
	6310							
10					Frequent roots			
	6305				12.0			
				CL	**Native Topsoil**; **Lean CLAY with sand** - medium stiff, moist dark brown, organic odor 13.0			
				ML	**Gravelly SILT with sand** - very dense, slightly moist light yellowish brown 14.0	11.8	52.1	

Bottom of TP, No GW encountered

Graphics Legend

GC CL ML Bag

FIGURE

A-10

GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Caleb Reaveley	Hammer Type:	-
Operator:	-	Date Started:	10/10/23		
Rig Type:	Track Hoe	Test Pit Depth:	10 feet		
Location...	Approximate	Elevation:	~6323.6'		
Project No.:	00733-026	Coordinates:	40.64485, -111.40687		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
0					**Native Topsoil**; **Sandy Lean Clay** - stiff dark yellow brown 1.0				
				GM	**Silty GRAVEL** - dense, dry 2.0				
	6320			CL	**Sandy Lean CLAY** - stiff, moist moderate yellow brown				
5								75.6	48-19-29
	6315					17.2	101.8		
						15.6			
10					10.0				

Lab

Liquid Limit 0 50 100
Plastic Limit 0 50 100
Moisture Content 0 50 100

Bottom of TP, No GW encountered

Graphics Legend

null GM CL Bag

FIGURE

A-11

GCD - Shoreline Phase 4

Shoreline Drive

TP-0

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	12 feet		
Location...	Approximate	Elevation:	~6319.6'		
Project No.:	00733-026	Coordinates:	40.64474, -111.40755		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
0				SC	**Undocumented Fill**; **Clayey SAND with gravel** - medium dense, slightly moist				
2.0									
				ML	**Native**; **Sandy SILT** - very stiff, slightly moist moderate yellow brown				
	6315								
5									
					very stiff				
	6310							65.5	31-26-5
						27.6	85.3		
10									
						28.9			
12.0									

Lab

Liquid Limit 0 50 100
Plastic Limit 0 50 100
Moisture Content 0 50 100

Bottom of TP, No GW encountered

Graphics Legend

SC | ML | Bag | ST - Shelby Tube

FIGURE
A-12

GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	10 feet		
Location...	Approximate	Elevation:	~6321.5'		
Project No.:	00733-026	Coordinates:	40.64529, -111.40805		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Liquid Limit 0–50–100 / Plastic Limit 0–50–100 / Moisture Content 0–50–100
0						
	6320				**Native Topsoil**; **Lean CLAY with sand** - slightly moist to moist (1.0)	
				CL	**Lean CLAY** - slightly moist to moist, yellowish brown (6.0)	
5	6315					
				CL-ML	**Silty CLAY** - very stiff, dry to slightly moist, Mod yellow brown (10.0)	
10						

Bottom of TP, No GW encountered

Graphics Legend

CL | CL | CL-ML | -

FIGURE

A-13

GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	14 feet		
Location...	Approximate	Elevation:	~6333.9'		
Project No.:	00733-026	Coordinates:	40.64416, -111.40555		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks
0					**Undocumented Fill**; **Clayey GRAVEL with sand** - dense, moist, moderate brown, Max gravel 2 feet with a mode of 3 inches
	6330				
5				GC	
	6325				
10					
	6320				13.0
					Native; **Clayey SAND with gravel** - dense, moist, pale to moderate yellow brown, with low to moderate plasticity. Sand is Fine grained 14.0

Bottom of test pit no ground water encountered

	Liquid Limit	
0	50	100
	Plastic Limit	
0	50	100
	Moisture Content	
0	50	100

Graphics Legend

GC

Clayey Sand

-

-

FIGURE

A-6

GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	13 feet		
Location...	Approximate	Elevation:	~6341.0'		
Project No.:	00733-026	Coordinates:	40.64478, -111.40566		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines	Liquid Limit / Plastic Limit / Moisture Content (0–50–100)
0	6340				**Undocumented Fill**; **Clayey GRAVEL with sand** - medium dense, moist			
5	6335			GC				
10	6330							
		■		GC	**Native**; **Clayey GRAVEL with sand** - dense, moist, dusty yellow to pale yellow brown. Clay has moderate plasticity (12.0)	10.9	23	◆
					Lots of roots (11.5)			
					Bottom of TP, No GW encountered			

Graphics Legend

GC

GC

■ Grab - Grab Sample

-

FIGURE

A-15

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GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Caleb Reaveley	Hammer Type:	-
Operator:	-	Date Started:	10/10/23		
Rig Type:	Track Hoe	Test Pit Depth:	15 feet		
Location...	Approximate	Elevation:	~6361.0'		
Project No.:	00733-026	Coordinates:	40.64522, -111.40520		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Liquid Limit 0–50–100 / Plastic Limit 0–50–100 / Moisture Content 0–50–100
0	6360			CL	**Undocumented Fill**; **Sandy LEAN CLAY with gravel** - dense, dry to slightly moist Dense Gravels ranging from 4 inches to 2 feet 5.0	
5	6355				**Native Topsoil**; **Sandy Clay** 6.0	
10	6350			CL	**Lean CLAY with gravel** - very stiff, slightly moist to moist 13.0	
15				SC	**Clayey SAND** - very dense, slightly moist to moist, yellow 15.0	

Bottom of TP, No GW encountered

Graphics Legend

CL | null | CL | SC

FIGURE

A-16

GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	10 feet		
Location...	Approximate	Elevation:	~6332.4'		
Project No.:	00733-026	Coordinates:	40.64544, -111.40759		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Moisture Content (%)	Dry Density (PCF)	Atterberg Limits (LL-PL-PI)	Lab: Liquid Limit / Plastic Limit / Moisture Content (0–50–100)
0					**Undocumented Fill with gravel** - medium stiff, moist				
	6330				4.0				
5				CL	**Native**; **Lean CLAY** - stiff, slightly moist, Moderate yellow Brown	12.7	100.2	45-18-27	
	6325				8.0				
10				GM	**Silty GRAVEL** - dense, dry, moderate yellow brown				
					10.0				

Bottom of TP, No GW encountered

Graphics Legend

CL

GM

ST - Shelby Tube

-

FIGURE

A-17

GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Caleb Reaveley	Hammer Type:	-
Operator:	-	Date Started:	10/10/23		
Rig Type:	Track Hoe	Test Pit Depth:	12 feet		
Location...	Approximate	Elevation:	~6345.9'		
Project No.:	00733-026	Coordinates:	40.64532, -111.40665		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Moisture Content (%)	Dry Density (PCF)	% Fines
0	6345			GC	**Undocumented Fill**; **Clayey GRAVEL** - medium dense, moist (0.5)			
					Native Topsoil; **Lean Clay** - slightly moist, Dark brown with roots (2.0)			
				CL	**Sandy Lean CLAY with gravel** - stiff, slightly moist, Gravel is highly weathered and breaks apart easily Moderate Pin holes in upper 3 feet			
5	6340					18.3	94.8	
10	6335					21.5		65
					(12.0)			

Lab

Liquid Limit ● 0 50 100
Plastic Limit ● 0 50 100
Moisture Content ◆ 0 50 100

Bottom of TP, No GW encountered

Graphics Legend

GC | null | CL | ST - Shelby Tube

FIGURE
A-18

GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	11 feet		
Location...	Approximate	Elevation:	~6337.0'		
Project No.:	00733-026	Coordinates:	40.64590, -111.40731		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines	Liquid Limit / Plastic Limit / Moisture Content (0–50–100)
0								
	6335			GC	**Undocumented Fill**; **Clayey GRAVEL with sand** - Medium dense, moist and moderate brown.			
5	6330				7.5			
		■		CL	**Native**; **Sandy Lean CLAY** - very stiff, moist, moderate yellow brown, with trace gravel	17.2	48.4	◆
10	6325				11.0			

Bottom of TP, No GW encountered

Graphics Legend

GC

CL

■ Grab - Grab Sample

-

FIGURE

A-19

GCD - Shoreline Phase 4

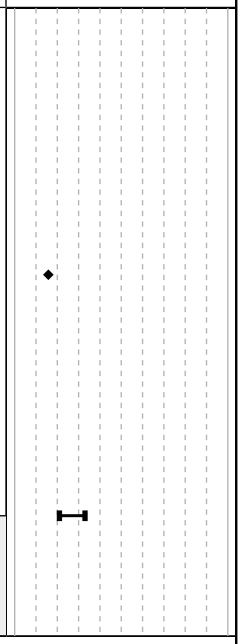
Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Dylan Butt	Hammer Type:	-
Operator:	-	Date Started:	10/09/23		
Rig Type:	Track Hoe	Test Pit Depth:	10 feet		
Location...	Approximate	Elevation:	~6347.6'		
Project No.:	00733-026	Coordinates:	40.64491, -111.40600		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks		Lab: Moisture Content (%)	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0					**Native Topsoil**; **Sandy Lean CLAY** - stiff, dry to slightly moist, Dark yellow brown	1.0			
	6345			CL	**Sandy Lean CLAY** - very stiff, slightly moist, moderate yellow brown	2.5			
				GP	**Poorly Graded GRAVEL** - very dense, dry, grey	3.0			
				CL	**Sandy Lean CLAY** - very stiff, slightly moist, moderate yellow brown				
5							15.8	60.2	
	6340								33-21-12
10						10.0			

Bottom of TP, No GW encountered



Graphics Legend

CL CL GP Grab - Grab Sample

FIGURE

A-20

GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Caleb Reaveley	Hammer Type: -
Operator:	-	Date Started:	10/10/23	
Rig Type:	Track Hoe	Test Pit Depth:	12 feet	
Location...	Approximate	Elevation:	~6357.8'	
Project No.:	00733-026	Coordinates:	40.64564, -111.40572	
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level: N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date: -

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
0				GP	**Undocumented Fill**; **Poorly Graded GRAVEL with sand** - dense, dry to slightly moist, moderate yellow brown (1.0)				
	6355				**Native Topsoil**; **Sandy Lean Clay** - stiff, dry to slightly moist, dark yellow brown (2.5)				
5				CL	**Lean CLAY with gravel** - stiff, slightly moist, Moderate yellow brown (7.0)	25.1	91.0	63.6	
	6350			GP	**Poorly Graded GRAVEL** - very dense, dry, Gravels range from 2 to 4 inches (8.0)				
10				CL	**Lean CLAY with gravel** - very stiff, dry, yellow brown (12.0)	12.9	109.2		37-16-21
	6345								

Lab

Atterberg Limits (LL-PL-PI): Liquid Limit 0–50–100; Plastic Limit 0–50–100; Moisture Content 0–50–100

Bottom of TP, No GW encountered

Graphics Legend

GP | null | CL | GP

FIGURE

A-21

GCD - Shoreline Phase 4

Shoreline Drive

TP-1

Contractor:	Client Provided	Logged By:	Caleb Reaveley	Hammer Type: -
Operator:	-	Date Started:	10/10/23	
Rig Type:	Track Hoe	Test Pit Depth:	11.5 feet	
Location...	Approximate	Elevation:	~6357.2'	
Project No.:	00733-026	Coordinates:	40.64565, -111.40612	
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level: N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date: -

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines
0					**Native Topsoil**; **Sandy LEAN CLAY with gravel** - stiff, slightly moist, Dark brown, lots of roots (1.0)		
	6355			CL	**Sandy Lean CLAY** - stiff, dry to slightly moist, moderate yellow brown (2.5)	10.3	68.9
				GP	**Poorly Graded GRAVEL** - very dense, dry, Gray (3.5)		
5	6350			CL	**Sandy Lean CLAY** - stiff, dry to slightly moist, moderate yellow brown	10.4	
10					(11.5)	16.9	43.5

Bottom of TP, No GW encountered

Liquid Limit 0 50 100
Plastic Limit 0 50 100
Moisture Content 0 50 100

Graphics Legend

CL CL GP Grab - Grab Sample

FIGURE **A-22**

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GCD - Shoreline Phase 4

Shoreline Drive

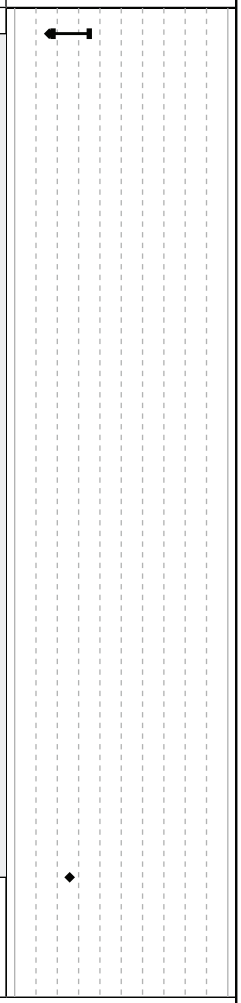
TP-2

Page 1 of 1

Contractor:	Client Provided	Logged By:	Caleb Reaveley	Hammer Type:	-
Operator:	-	Date Started:	10/10/23		
Rig Type:	Track Hoe	Test Pit Depth:	16 feet		
Location...	Approximate	Elevation:	~6349.4'		
Project No.:	00733-026	Coordinates:	40.64604, -111.40684		
Drilling Method:	Track-Mounted Excavator	Water Level at Time of Drilling:	N/A	Delayed Water Level:	N/A
		Cave-In at Time of Drilling:	N/A	Delayed Water Observation Date:	-

Depth (ft)	Elevation (ft)	Sample Type	Graphic Log	USCS	Visual Classification and Remarks	Lab: Moisture Content (%)	Lab: % Fines	Lab: Atterberg Limits (LL-PL-PI)
0					**Undocumented Fill**; **Clayey Gravel** - very dense, slightly moist, Moderate brown, Compacted fill containing trash and construction debris			
	6345							
5						16.2	41.1	35-18-17
	6340							
10								
	6335				14.0			
15				CL	**Native**; **Sandy Lean CLAY** - stiff, dry, moderate yellow brown	25.8		
					16.0			

Bottom of TP, No GW encountered



Graphics Legend

null | CL | Bucket | Grab - Grab Sample

FIGURE

A-23

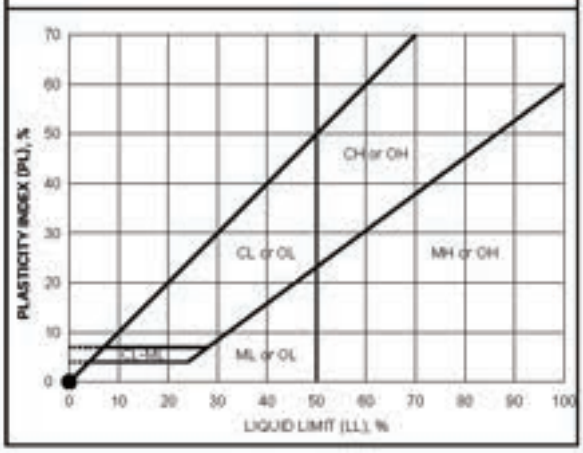
SOIL CLASSIFICATION CHART PER ASTM D 2488

PRIMARY DIVISIONS			SECONDARY DIVISIONS	
			GROUP SYMBOL	GROUP NAME
COARSE-GRAINED SOILS more than 50% retained on No. 200 sieve	GRAVEL more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL
			GP	poorly-graded GRAVEL
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt
			GP-GM	poorly-graded GRAVEL with silt
			GW-GC	well-graded GRAVEL with clay
			GP-GC	poorly-graded GRAVEL with clay
		GRAVEL with FINES more than 12% fines	GM	silty GRAVEL
			GC	clayley GRAVEL
			GC-GM	silty, clayley GRAVEL
	SAND 50% or more of coarse fraction retained on No. 4 sieve	CLEAN SAND less than 5% fines	SW	well-graded SAND
			SP	poorly-graded SAND
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SM	well-graded SAND with silt
			SP-SM	poorly-graded SAND with silt
			SW-SC	well-graded SAND with clay
			SP-SC	poorly-graded SAND with clay
		SAND with FINES more than 12% fines	SM	silty SAND
			SC	clayley SAND
			SC-SM	silty, clayley SAND
FINE-GRAINED SOILS 50% or more passes No. 200 sieve	SILT and CLAY liquid limit less than 50%	INORGANIC	CL	lean CLAY
			ML	SILT
			CL-ML	silty CLAY
		ORGANIC	OL (PI > 4)	organic CLAY
			OL (PI < 4)	organic CLAY
	SILT and CLAY liquid limit 50% or more	INORGANIC	CH	fat CLAY
			MH	elastic SILT
		ORGANIC	OH (plots on or above "A"-line)	organic CLAY
			OH (plots below "A"-line)	organic SILT
	Highly Organic Soils		PT	Peat

GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APP
Boulders		> 12"	> 12"	Larger than basketball-sized
Cobbles		3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	0.19 - 0.75"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	0.079 - 0.19"	Rock-salt-sized to pea-sized
	Medium	#40 - #10	0.017 - 0.079"	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	0.0029 - 0.017"	Flour-sized to sugar-sized
Fines		Passing #200	< 0.0029"	Flour-sized and smaller

PLASTICITY CHART



APPARENT DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPOOLING CABLE OR CATHEAD		AUTOMATIC TRIP HAMMER	
	SPT (blows/foot)	MODIFIED SPLIT BARREL (blows/foot)	SPT (blows/foot)	MODIFIED SPLIT BARREL (blows/foot)
Very Loose	< 4	< 8	< 3	< 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

CONSISTENCY - FINE-GRAINED SOIL

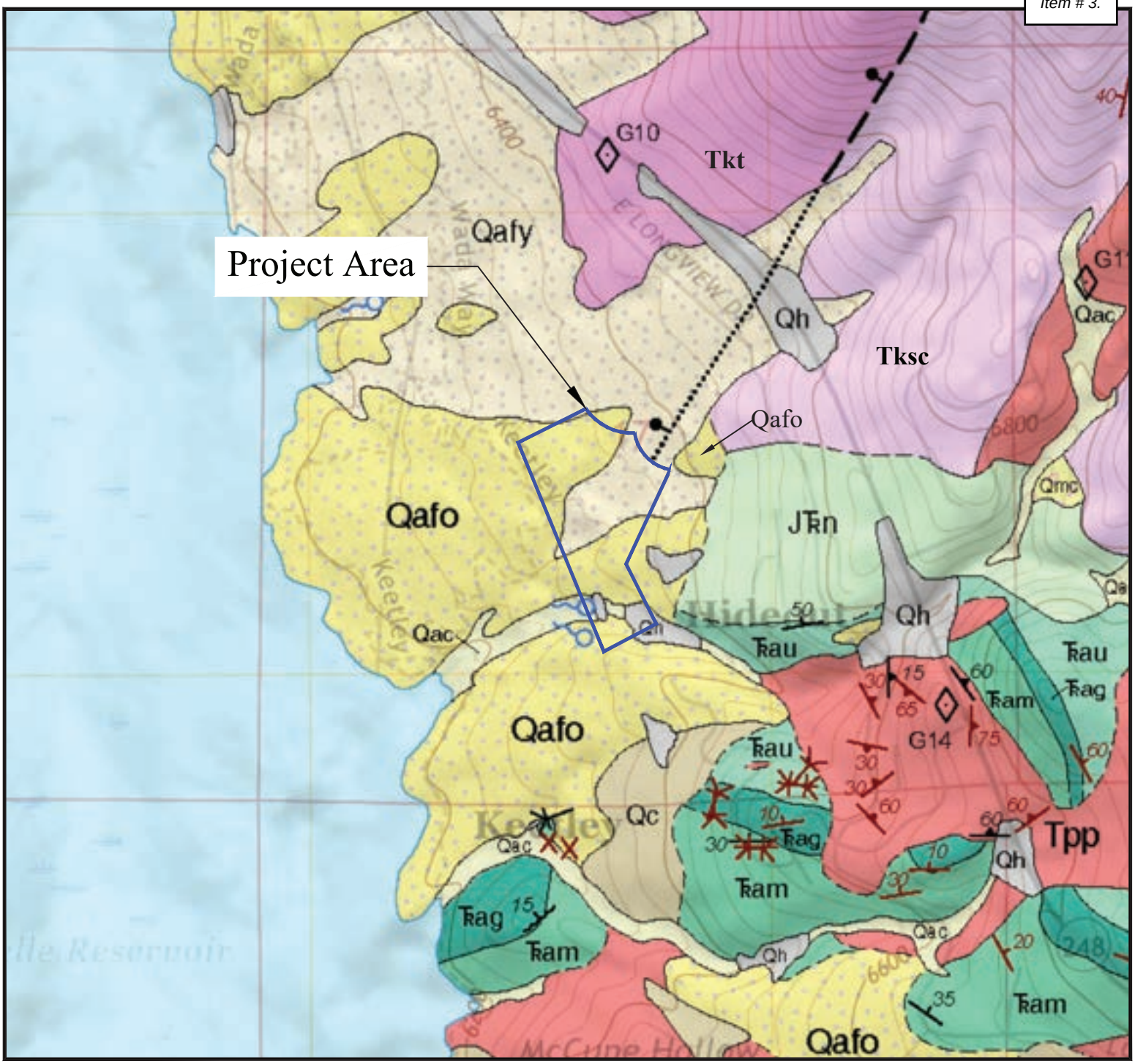
CONSISTENCY	SPOOLING CABLE OR CATHEAD		AUTOMATIC TRIP HAMMER	
	SPT (blows/foot)	MODIFIED SPLIT BARREL (blows/foot)	SPT (blows/foot)	MODIFIED SPLIT BARREL (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

Geotechnical Investigation
GCD – Shoreline Phase 4
Hideout, Utah

Key to Soil Symbols and Terminology

Project Number – 00733-026

Figure A-24



Base Map:

- UGS *Park City East* 7.5 Minute Geologic Quadrangle, Summit & Wasatch Counties, Utah, 1:24,000 scale, Biek (2022)

*Map Legend on Figure A-25b and A-25c.

0 1000 2000
FEET
1" = 1000'

N

IGES
Project No: 00733-026

Geotechnical Investigation
GCD — Shoreline Phase 4 Development
Wasatch County, Utah

Regional Geology Map

Figure A-25a

Map Legend

Qh **Artificial fill** (Historical) – Engineered fill and general borrow material mapped along major highways and secondary roads that cross small drainages; includes large area of fill and disturbed land near the intersection of Utah Highway 248 and Browns Canyon Road; fill of variable thickness and composition exists in all developed or disturbed areas; mapped only where fill is typically 6 feet (2 m) or more thick.

Qac **Alluvium and colluvium** (Holocene to upper Pleistocene) – Poorly to moderately sorted, generally poorly stratified, clay- to boulder-size, locally derived sediment (colluvium) deposited in swales, small drainages, and the upper reaches of larger ephemeral streams by slope-wash and creep processes; sediment is locally reworked by ephemeral streams, which is not differentiated here due to map scale; generally less than 30 feet (9 m) thick.

Qafy **Young and middle fan alluvium, undivided** (Holocene to upper Pleistocene) – Similar to young fan alluvium (**Qaf$_5$**), but forms both active depositional surfaces (**Qaf$_1$** equivalent) and low-level, typically inactive surfaces incised by small streams; deposited principally as debris flows and debris floods, but colluvium locally constitutes a significant part adjacent to range fronts; upper parts of fans are commonly incised; probably less than 40 feet (12 m) thick.

Also forms the broad, planar, gently sloping surface of Park Meadows, where it is inferred to have been deposited as glacial outwash in braided-stream channels and is thus principally late Pleistocene in age, but may locally include veneer of Holocene alluvial deposits. Surface morphology mostly disturbed by development, making it difficult to discern the relative contributions of the Silver Creek headwater drainages and Thaynes Canyon drainage. These deposits form the upper part of Park Meadows basin-fill deposits that, based on water well data, are less than 80 feet (25 m) thick (Ashland and others, 2001).

Miller (1976) reported on the Silver Creek fauna located in this map unit, which is a collection of late Pleistocene vertebrate fossils including Columbian mammoth, giant Harlan's ground sloth, dire wolf, saber-toothed cat, humpless western camel, Mexican horse, giant bison, and a variety of smaller mammals and amphibians. These fossils are about 40,000 years old based on radiocarbon analyses and were discovered in a marshy area (now drained and developed and mapped as **Qafy**) immediately northwest of the junction of Interstate 80-Utah State Highway 40. They represent one of the most diverse collections of Ice Age fauna in Utah.

Qafo **Old fan alluvium** (upper to middle Pleistocene) – Poorly to moderately sorted, weakly to non-stratified, clay- to boulder-size sediment deposited principally as debris flows and debris floods; deeply incised by modern drainages, but still exhibits characteristic fan morphology; upper parts of fans locally receive debris-flow and colluvial sediment from adjacent slopes; characterized by well-developed secondary calcium carbonate in upper part of deposit; exposed thickness as much as several tens of feet.

Tksc **Volcanic mudflow breccia of Silver Creek** (lower Oligocene to upper Eocene) – Andesitic to rhyodacitic volcanic mudflow breccia and minor interbedded lava flows and ash-flow tuff; typically heterolithic, but locally monolithic, the reverse of that reported by Woodfill (1972); clasts are andesite and rhyodacite by field classification but chemically range from latite and trachyte to andesite and dacite (Bromfield and others, 1977); weathers to rounded hills, typically with a deep regolith and poor exposure, and commonly covered with a lag of volcanic boulders; locally exhibits prominent lineaments, likely joints, on aerial photographs, the larger ones of which are mapped; some of the best exposures are in Three-mile Canyon near the north edge of the map area; similar to and at least in part correlative with the volcanic breccia of Coyote Canyon east of Heber City (Biek and others, 2003); represents deposition as lahars (debris flows of volcanic material) on the distal flanks of stratovolcanoes that once towered over the eastern stocks of the Wasatch intrusive belt; in this map area lower contact is not exposed but appears sharp, commonly corresponding to a break in slope; Anderson (in preparation) noted that where underlain by older conglomerate (Toc) in the adjacent Wanship quadrangle, the lower contact appears gradational and interfingering, and Biek and others (2003) noted that this interval in the Center Creek quadrangle east of Heber Valley corresponds to an informal quartzite clast unit of the middle Keetley; map patterns suggest thicknesses of as much as 1000 feet (300 m) in the southeast part of this map area and at least 1400 feet (430+ m) southeast of Heber City (Biek and others, 2003).

Map Legend

JTRn **Nugget Sandstone** (Lower Jurassic to Upper Triassic) – Moderate-reddish-orange, moderate-orange-pink and very pale orange, cross-bedded, moderately well-cemented quartz sandstone composed of well-rounded, fine- to medium-grained, frosted quartz grains; bedding consists of high-angle, large-scale cross-bedding in tabular planar, wedge planar, and trough shaped sets 10 to 45 feet or more (3–14+ m) thick; upper unconformable contact is sharp and planar and corresponds to a prominent lithologic and topographic change, with ledge-forming, massively cross-bedded sandstone below and slope-forming, dark-reddish-brown or locally yellowish-brown, fine- to medium-grained silty sandstone with minor coarse sand grains above; deposited principally by winds from the north in a vast coastal and inland dune field (Kocurek and Dott, 1983; Blakey, 1994; Marzolf, 1994; Peterson, 1994), part of one of the world's largest coastal and inland paleodune fields (Milligan, 2012); much of the sand may originally have been transported to areas north and northwest of Utah via a transcontinental river system that tapped Grenvillian-age (about 1.0 to 1.3 Ga) crust involved in Appalachian orogenesis of eastern North America (Dickinson and Gehrels, 2003, 2009a, 2009b; Rahl and others, 2003; Reiners and others, 2005); correlative with the entire Glen Canyon Group of the Colorado Plateau (Wingate Sandstone/Moenave Formation, Kayenta Formation, and Navajo Sandstone) (Sprinkel and others, 2011b); Sprinkel and others (2011b) also summarized age control, primarily aetosaur and dinosaur tracks, indicating that the Triassic-Jurassic boundary is within the Nugget Sandstone and that the J-0 unconformity of Pipiringos and O'Sullivan (1978) probably does not exist in northern Utah; incomplete section immediately north of Utah Highway 196 is about 1000 feet (300 m) thick, but the base is not exposed; Bryant (1990) reported Nugget thicknesses of about 1300 feet (400 m) near Parleys Canyon and about 900 feet (280 m) near Peoa; about 900 to 1000 feet (275–300 m) thick on the saddle west of Soldier Hollow, and about 1260 feet (385 m) thick in the West Daniels Land #1 well south of Heber Valley (Biek and others, 2003).

Normal fault – dashed where approximately located, dotted where concealed; queried where existence uncertain; bar and ball on down-thrown side

Strike and dip of inclined bedding; red symbols indicated attitudes from Bromfield and Crittenden (1971)

Spring

Project No: 00733-026

Geotechnical Investigation
GCD — Shoreline Phase 4 Development
Wasatch County, Utah

Regional Geology Map Text

Figure

A-25c

APPENDIX B

Water Content and Unit Weight of Soil

(In General Accordance with ASTM D7263 Method B and D2216)

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Project: **Shoreline - Phase 4**
No: **00733-026**
Location: Hideout
Date: 10/18/2023
By: CJ

Sample Info.	Boring No.	TP-8	TP-9	TP-19	TP-20				
	Sample								
	Depth	7.5'	10.0'	6.0'	15.0'				
	Split	No	No	Yes	No				
	Split sieve			3/8"					
	Total sample (g)			2680.01					
	Moist coarse fraction (g)			1387.38					
	Moist split fraction (g)			1292.63					
	Sample height, H (in)								
	Sample diameter, D (in)								
	Mass rings + wet soil (g)								
	Mass rings/tare (g)								
	Moist unit wt., γ_m (pcf)								
Coarse Fraction	Wet soil + tare (g)			1853.20					
	Dry soil + tare (g)			1793.06					
	Tare (g)			465.82					
	Water content (%)			4.5					
Split Fraction	Wet soil + tare (g)	469.45	469.42	367.18	513.96				
	Dry soil + tare (g)	423.32	393.12	331.12	434.61				
	Tare (g)	126.83	128.65	123.46	126.76				
	Water content (%)	15.6	28.9	17.4	25.8				
	Water Content, w (%)	**15.6**	**28.9**	**10.4**	**25.8**				
	Dry Unit Wt., γ_d (pcf)								

Entered by:_____

Reviewed:_____

Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/23/2023
By: RH
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-2
Sample:
Depth: 3.0'
Description: Brown silty clay

Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

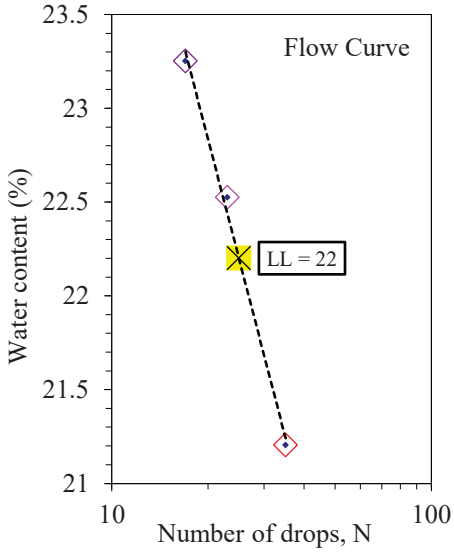
Plastic Limit

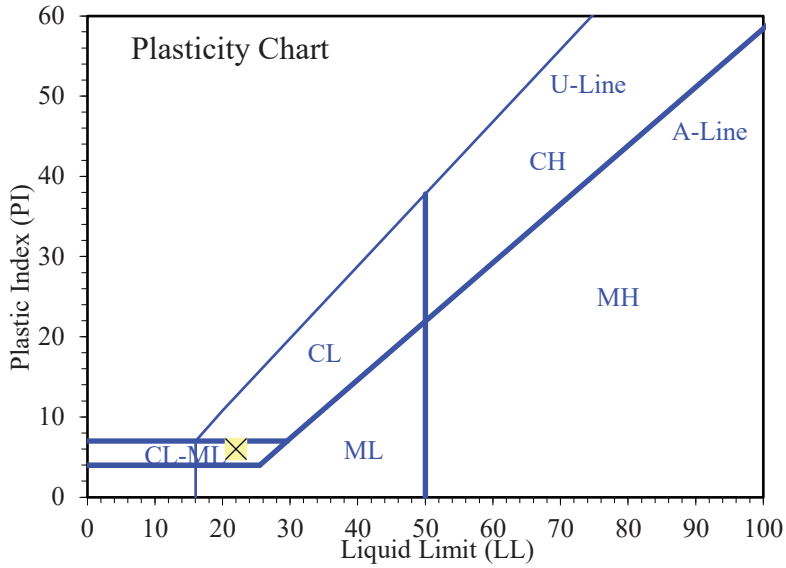
Determination No	1	2				
Wet Soil + Tare (g)	14.28	14.38				
Dry Soil + Tare (g)	13.29	13.41				
Water Loss (g)	0.99	0.97				
Tare (g)	7.06	7.32				
Dry Soil (g)	6.23	6.09				
Water Content, w (%)	15.89	15.93				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	35	23	17			
Wet Soil + Tare (g)	12.81	14.53	15.51			
Dry Soil + Tare (g)	11.86	13.21	13.98			
Water Loss (g)	0.95	1.32	1.53			
Tare (g)	7.38	7.35	7.40			
Dry Soil (g)	4.48	5.86	6.58			
Water Content, w (%)	21.21	22.53	23.25			
One-Point LL (%)		22				

Liquid Limit, LL (%)	**22**
Plastic Limit, PL (%)	**16**
Plasticity Index, PI (%)	**6**





Entered by:_____
Reviewed:_____

Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/20/2023
By: BRR
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-3
Sample:
Depth: 8.0'
Description: Brown fat clay

Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

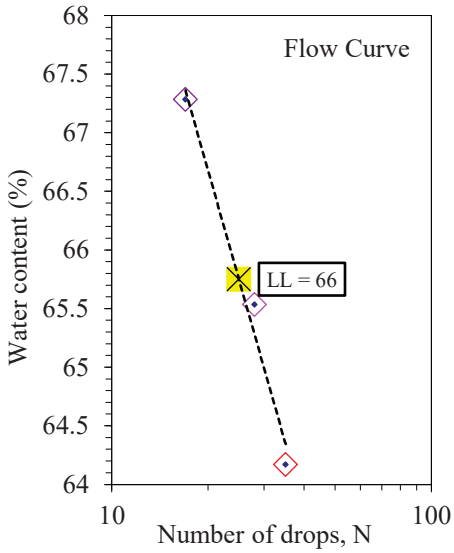
Plastic Limit

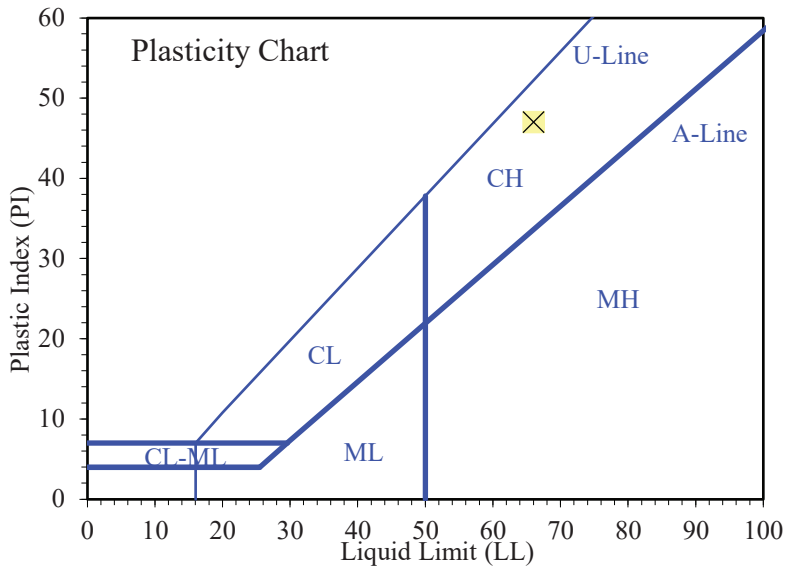
Determination No	1	2				
Wet Soil + Tare (g)	14.05	15.37				
Dry Soil + Tare (g)	13.01	14.14				
Water Loss (g)	1.04	1.23				
Tare (g)	7.55	7.70				
Dry Soil (g)	5.46	6.44				
Water Content, w (%)	19.05	19.10				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	35	28	17			
Wet Soil + Tare (g)	14.08	14.29	15.74			
Dry Soil + Tare (g)	11.34	11.59	12.47			
Water Loss (g)	2.74	2.70	3.27			
Tare (g)	7.07	7.47	7.61			
Dry Soil (g)	4.27	4.12	4.86			
Water Content, w (%)	64.17	65.53	67.28			
One-Point LL (%)		66				

Liquid Limit, LL (%)	**66**
Plastic Limit, PL (%)	**19**
Plasticity Index, PI (%)	**47**





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Reviewed:_____

Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/20/2023
By: BRR
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-5
Sample:
Depth: 6.0'
Description: Brown lean clay
Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

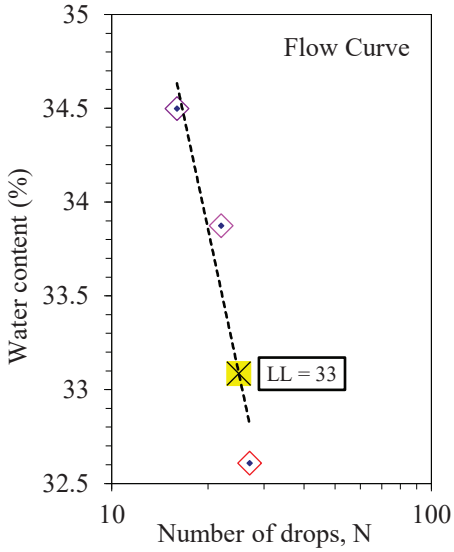
Plastic Limit

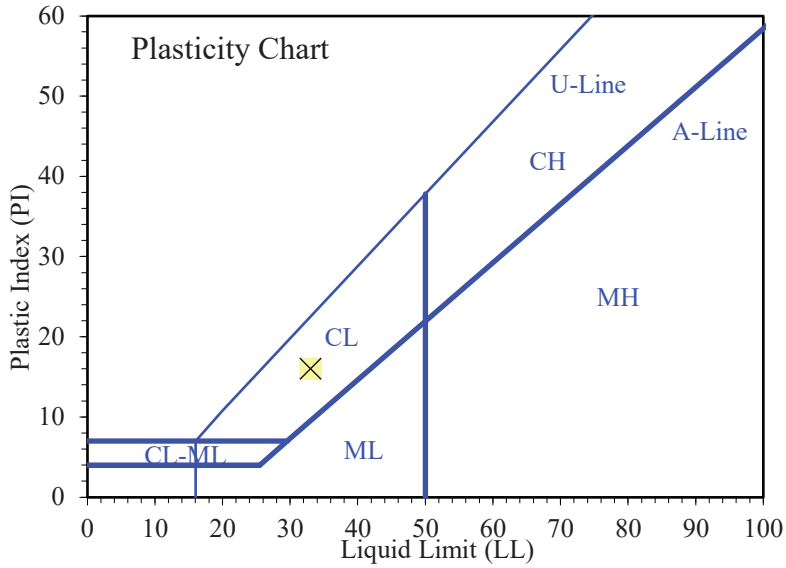
Determination No	1	2				
Wet Soil + Tare (g)	13.86	14.28				
Dry Soil + Tare (g)	12.84	13.23				
Water Loss (g)	1.02	1.05				
Tare (g)	7.08	7.12				
Dry Soil (g)	5.76	6.11				
Water Content, w (%)	17.71	17.18				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	27	22	16			
Wet Soil + Tare (g)	13.81	12.85	13.57			
Dry Soil + Tare (g)	12.16	11.39	11.99			
Water Loss (g)	1.65	1.46	1.58			
Tare (g)	7.10	7.08	7.41			
Dry Soil (g)	5.06	4.31	4.58			
Water Content, w (%)	32.61	33.87	34.50			
One-Point LL (%)	33	33				

Liquid Limit, LL (%)	**33**
Plastic Limit, PL (%)	**17**
Plasticity Index, PI (%)	**16**





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Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/24/2023
By: RH
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-6
Sample:
Depth: 3.0'
Description: Brown lean clay
Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

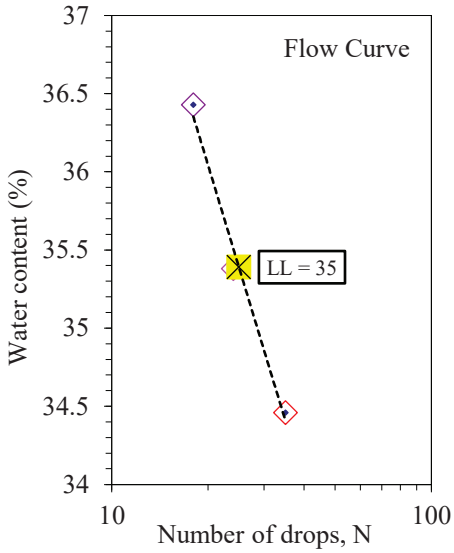
Plastic Limit

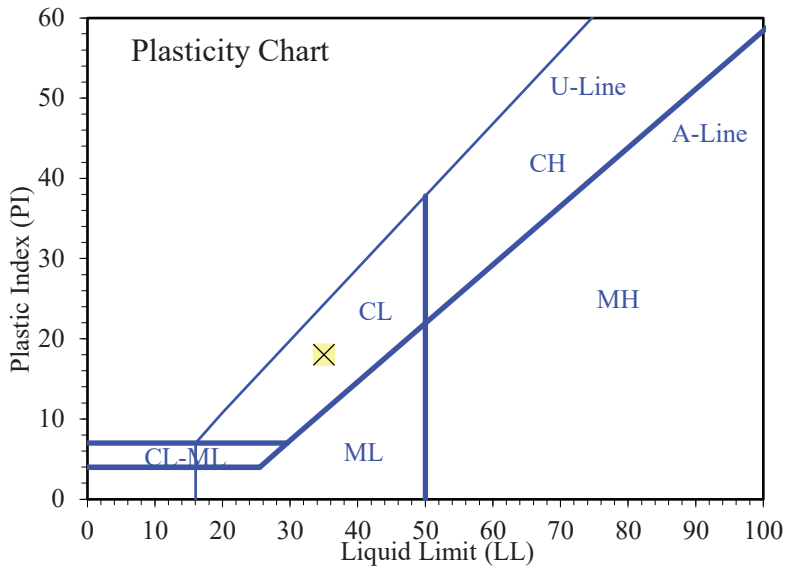
Determination No	1	2				
Wet Soil + Tare (g)	13.60	13.63				
Dry Soil + Tare (g)	12.71	12.65				
Water Loss (g)	0.89	0.98				
Tare (g)	7.54	7.06				
Dry Soil (g)	5.17	5.59				
Water Content, w (%)	17.21	17.53				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	35	24	18			
Wet Soil + Tare (g)	13.03	13.96	14.99			
Dry Soil + Tare (g)	11.50	12.24	12.95			
Water Loss (g)	1.53	1.72	2.04			
Tare (g)	7.06	7.37	7.35			
Dry Soil (g)	4.44	4.87	5.60			
Water Content, w (%)	34.46	35.38	36.43			
One-Point LL (%)		35				

Liquid Limit, LL (%)	**35**
Plastic Limit, PL (%)	**17**
Plasticity Index, PI (%)	**18**





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Reviewed:_____

Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/23/2023
By: RH
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-8
Sample:
Depth: 4.0'
Description: Brown lean clay
Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

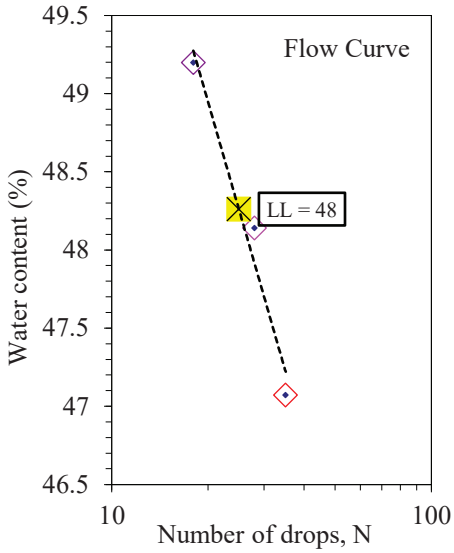
Plastic Limit

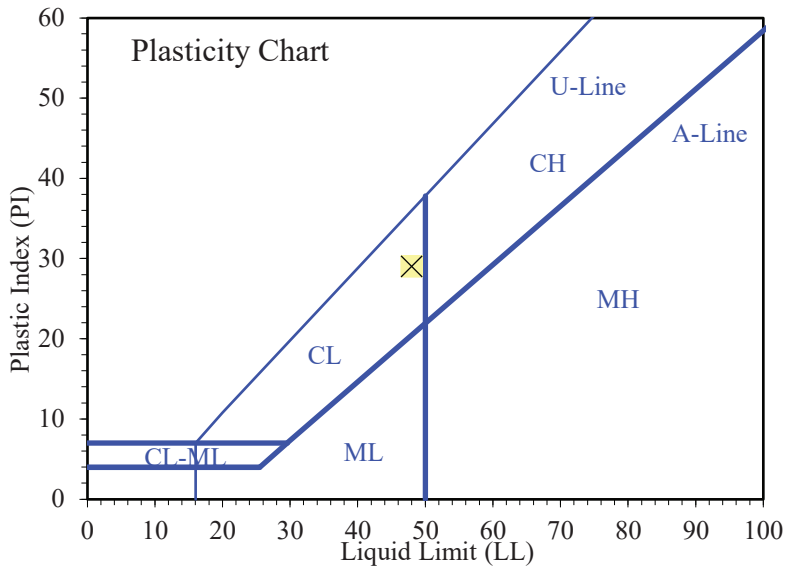
Determination No	1	2				
Wet Soil + Tare (g)	13.15	13.99				
Dry Soil + Tare (g)	12.17	12.90				
Water Loss (g)	0.98	1.09				
Tare (g)	6.99	7.11				
Dry Soil (g)	5.18	5.79				
Water Content, w (%)	18.92	18.83				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	35	28	18			
Wet Soil + Tare (g)	14.46	13.87	14.15			
Dry Soil + Tare (g)	12.21	11.67	12.00			
Water Loss (g)	2.25	2.20	2.15			
Tare (g)	7.43	7.10	7.63			
Dry Soil (g)	4.78	4.57	4.37			
Water Content, w (%)	47.07	48.14	49.20			
One-Point LL (%)		49				

Liquid Limit, LL (%)	**48**
Plastic Limit, PL (%)	**19**
Plasticity Index, PI (%)	**29**





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Reviewed:_____

Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/25/2023
By: BRR
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-9
Sample:
Depth: 5.0'
Description: Reddish brown silt

Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

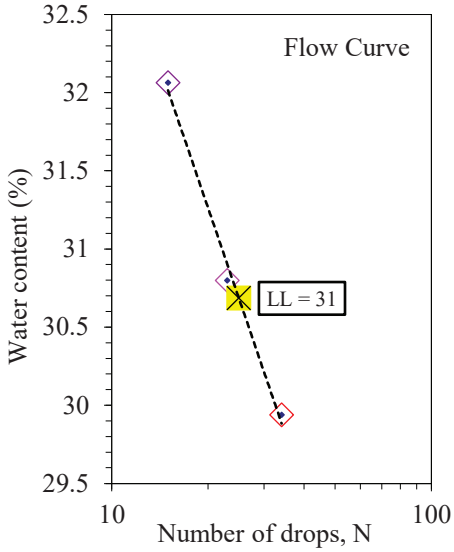
Plastic Limit

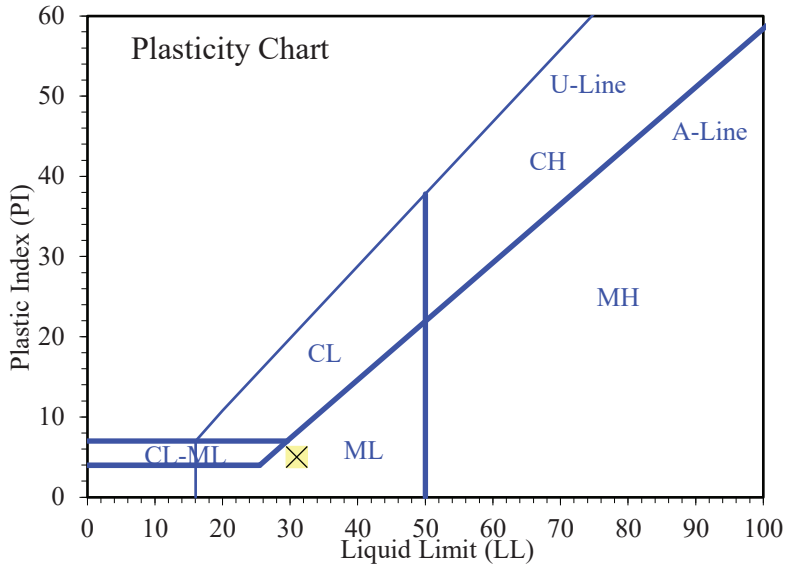
Determination No	1	2				
Wet Soil + Tare (g)	14.28	14.11				
Dry Soil + Tare (g)	12.91	12.75				
Water Loss (g)	1.37	1.36				
Tare (g)	7.63	7.50				
Dry Soil (g)	5.28	5.25				
Water Content, w (%)	25.95	25.90				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	34	23	15			
Wet Soil + Tare (g)	13.70	14.10	14.07			
Dry Soil + Tare (g)	12.23	12.52	12.47			
Water Loss (g)	1.47	1.58	1.60			
Tare (g)	7.32	7.39	7.48			
Dry Soil (g)	4.91	5.13	4.99			
Water Content, w (%)	29.94	30.80	32.06			
One-Point LL (%)		30				

Liquid Limit, LL (%)	**31**
Plastic Limit, PL (%)	**26**
Plasticity Index, PI (%)	**5**





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Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/20/2023
By: BRR
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-14
Sample:
Depth: 5.0'
Description: Brown lean clay

Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

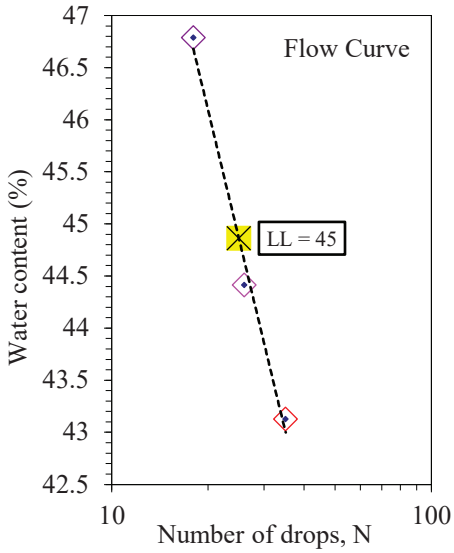
Plastic Limit

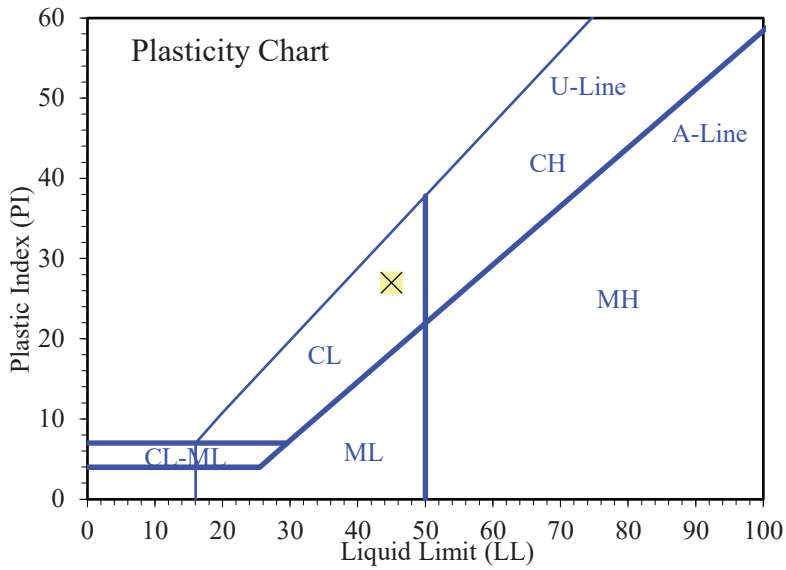
Determination No	1	2				
Wet Soil + Tare (g)	13.81	13.69				
Dry Soil + Tare (g)	12.79	12.71				
Water Loss (g)	1.02	0.98				
Tare (g)	7.05	7.14				
Dry Soil (g)	5.74	5.57				
Water Content, w (%)	17.77	17.59				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	35	26	18			
Wet Soil + Tare (g)	12.61	12.37	13.18			
Dry Soil + Tare (g)	11.01	10.74	11.36			
Water Loss (g)	1.60	1.63	1.82			
Tare (g)	7.30	7.07	7.47			
Dry Soil (g)	3.71	3.67	3.89			
Water Content, w (%)	43.13	44.41	46.79			
One-Point LL (%)		45				

Liquid Limit, LL (%)	**45**
Plastic Limit, PL (%)	**18**
Plasticity Index, PI (%)	**27**





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Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/24/2023
By: RH
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-17
Sample:
Depth: 8.0'
Description: Brown lean clay
Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

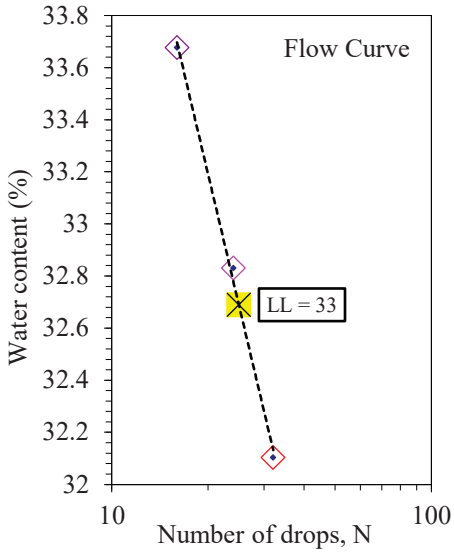
Plastic Limit

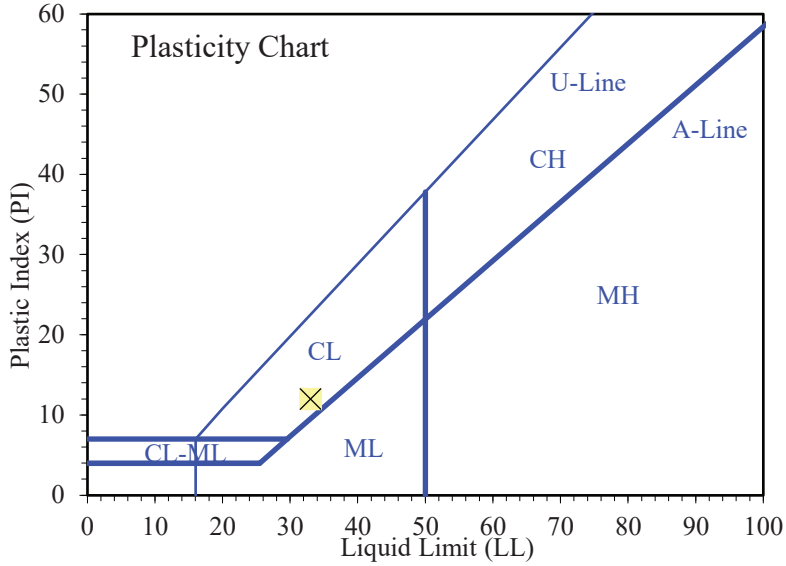
Determination No	1	2				
Wet Soil + Tare (g)	13.60	14.28				
Dry Soil + Tare (g)	12.49	13.02				
Water Loss (g)	1.11	1.26				
Tare (g)	7.07	7.00				
Dry Soil (g)	5.42	6.02				
Water Content, w (%)	20.48	20.93				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	32	24	16			
Wet Soil + Tare (g)	13.16	14.13	13.53			
Dry Soil + Tare (g)	11.68	12.39	11.90			
Water Loss (g)	1.48	1.74	1.63			
Tare (g)	7.07	7.09	7.06			
Dry Soil (g)	4.61	5.30	4.84			
Water Content, w (%)	32.10	32.83	33.68			
One-Point LL (%)		33				

Liquid Limit, LL (%)	**33**
Plastic Limit, PL (%)	**21**
Plasticity Index, PI (%)	**12**





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Reviewed:_____

Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/24/2023
By: RH
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-18
Sample:
Depth: 8.5'
Description: Brown lean clay
Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

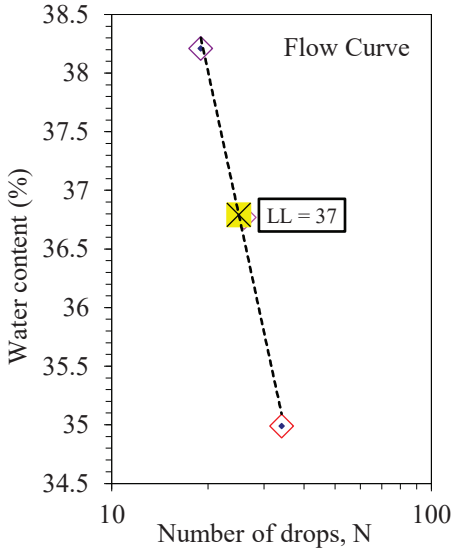
Plastic Limit

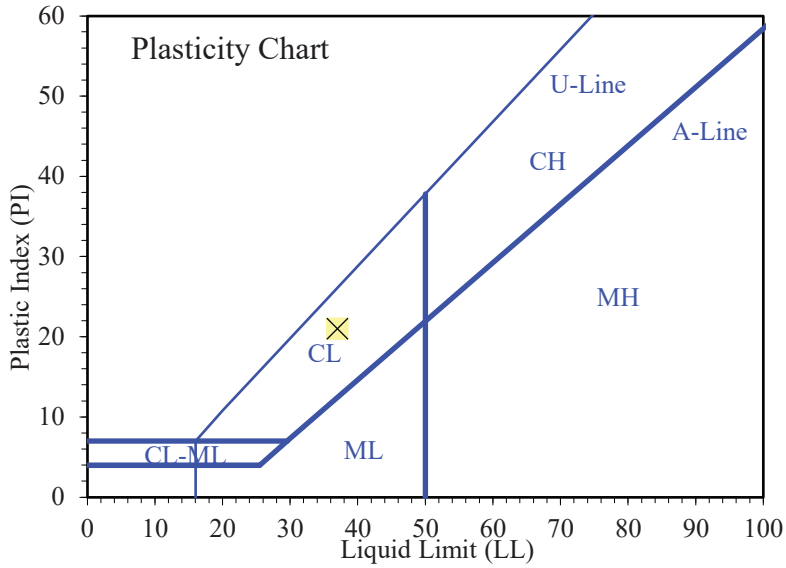
Determination No	1	2				
Wet Soil + Tare (g)	13.97	13.73				
Dry Soil + Tare (g)	13.01	12.82				
Water Loss (g)	0.96	0.91				
Tare (g)	7.08	7.06				
Dry Soil (g)	5.93	5.76				
Water Content, w (%)	16.19	15.80				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	34	26	19			
Wet Soil + Tare (g)	13.30	14.06	13.91			
Dry Soil + Tare (g)	11.68	12.17	12.03			
Water Loss (g)	1.62	1.89	1.88			
Tare (g)	7.05	7.03	7.11			
Dry Soil (g)	4.63	5.14	4.92			
Water Content, w (%)	34.99	36.77	38.21			
One-Point LL (%)		37				

Liquid Limit, LL (%)	**37**
Plastic Limit, PL (%)	**16**
Plasticity Index, PI (%)	**21**





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Reviewed:_____

Liquid Limit, Plastic Limit, and Plasticity Index of Soils

(ASTM D4318)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/24/2023
By: RH
Grooving tool type: Plastic
Liquid limit device: Mechanical
Rolling method: Hand

Boring No.: TP-20
Sample:
Depth: 13.0'
Description: Brown lean clay
Preparation method: Air Dry
Liquid limit test method: Multipoint
Screened over No.40: Yes
Larger particles removed: Dry sieved

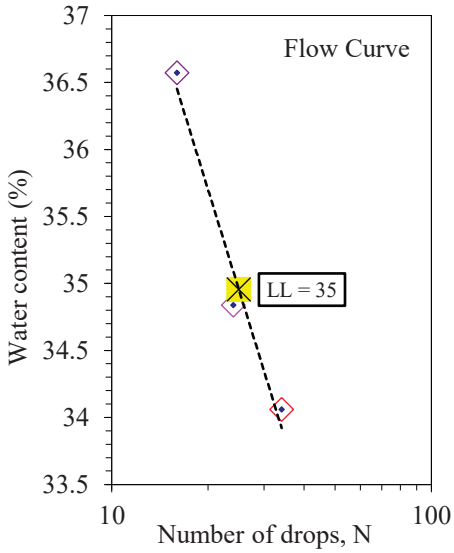
Plastic Limit

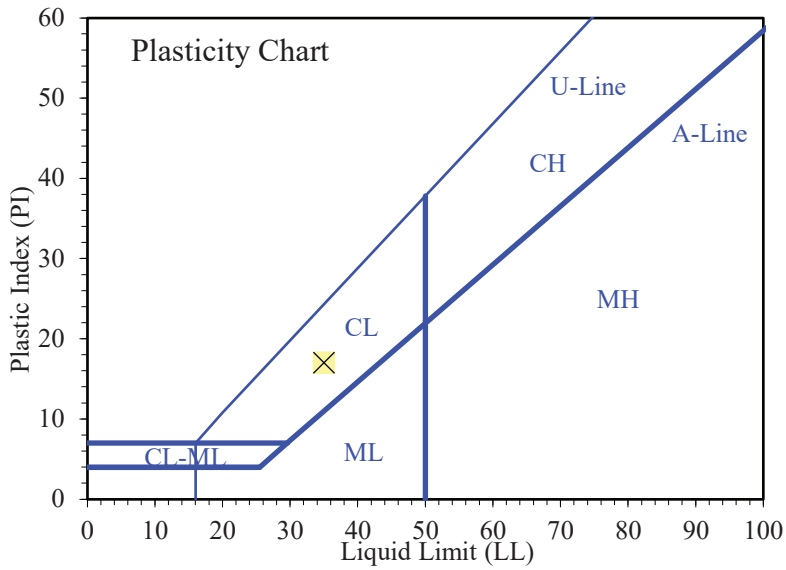
Determination No	1	2				
Wet Soil + Tare (g)	13.68	13.92				
Dry Soil + Tare (g)	12.68	12.93				
Water Loss (g)	1.00	0.99				
Tare (g)	7.00	7.42				
Dry Soil (g)	5.68	5.51				
Water Content, w (%)	17.61	17.97				

Liquid Limit

Determination No	1	2	3			
Number of Drops, N	34	24	16			
Wet Soil + Tare (g)	15.02	14.51	14.24			
Dry Soil + Tare (g)	12.99	12.58	12.32			
Water Loss (g)	2.03	1.93	1.92			
Tare (g)	7.03	7.04	7.07			
Dry Soil (g)	5.96	5.54	5.25			
Water Content, w (%)	34.06	34.84	36.57			
One-Point LL (%)		35				

Liquid Limit, LL (%)	**35**
Plastic Limit, PL (%)	**18**
Plasticity Index, PI (%)	**17**





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Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

(ASTM D6913)

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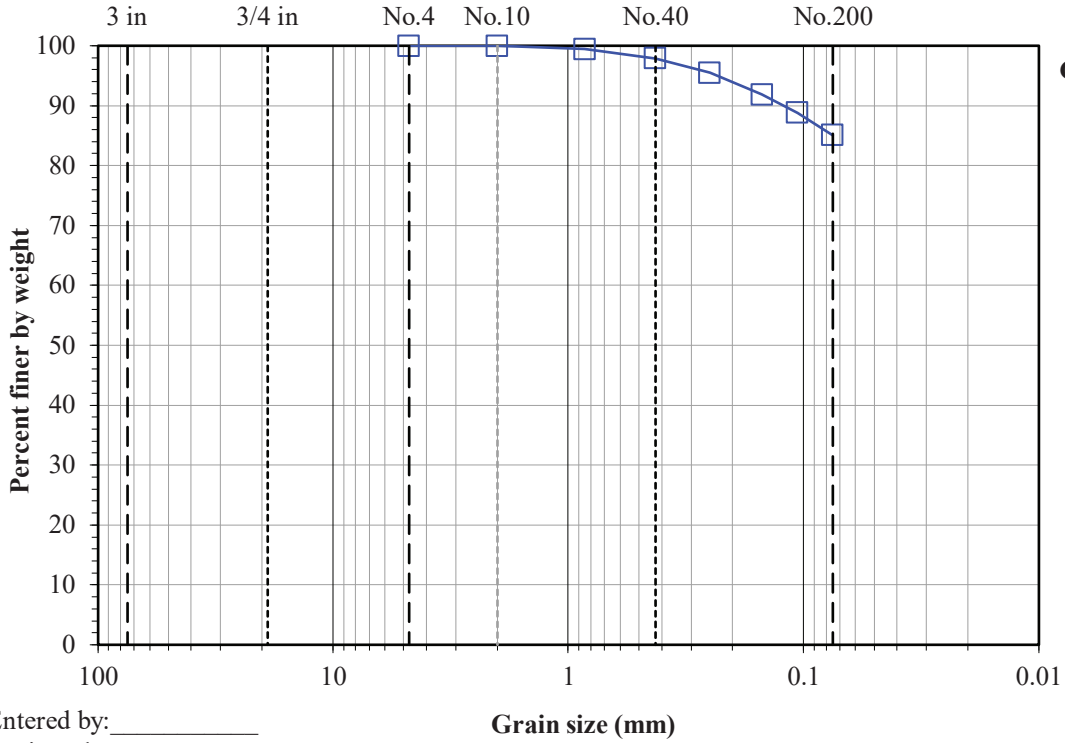
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/20/2023
By: RH

Boring No.: TP-3
Sample:
Depth: 8.0
Description: Brown clay

	Moist	Dry
Split:	No	
Total sample wt. (g):	261.33	206.75
	-	
Split fraction:	1.000	

Water content data		
Moist soil + tare (g):	-	384.58
Dry soil + tare (g):	-	330.00
Tare (g):	-	123.25
Water content (%):	0.0	26.4

Sieve	Accum. Wt. Ret. (g)	Grain Size (mm)	Percent Finer
6"	-	150	-
4"	-	100	-
3"	-	75	-
1.5"	-	37.5	-
1"	-	25	-
3/4"	-	19	-
3/8"	-	9.5	-
No.4	-	4.75	100.0
No.10	0.09	2	100.0
No.20	1.21	0.85	99.4
No.40	4.41	0.425	97.9
No.60	9.29	0.25	95.5
No.100	16.81	0.15	91.9
No.140	23.09	0.106	88.8
No.200	30.75	0.075	85.1



Gravel (%): 0.0
Sand (%): 14.9
Fines (%): 85.1

Entered by:_____
Reviewed:_____

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Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

(ASTM D6913)

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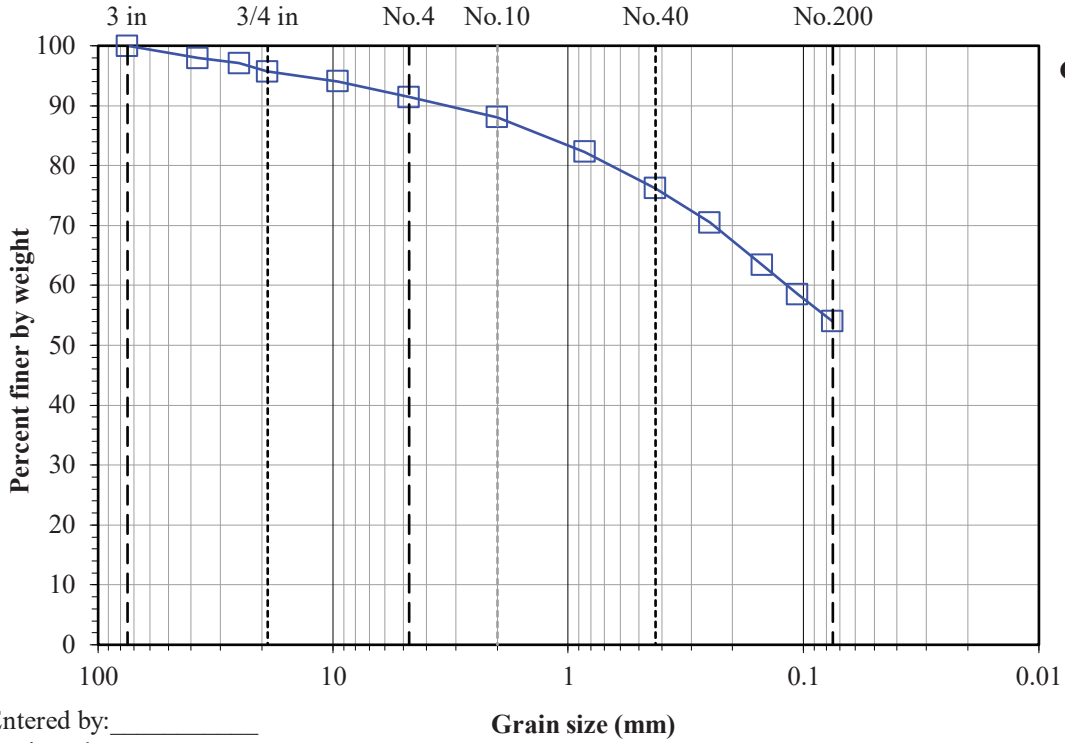
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/19/2023
By: KC

Boring No.: TP-5
Sample:
Depth: 6.0'
Description: Brown sandy clay

Split:	Yes	
Split sieve:	3/8"	
	Moist	Dry
Total sample wt. (g):	26082.3	22787.3
+3/8" Coarse fraction (g):	1415.75	1358.46
-3/8" Split fraction (g):	214.31	186.18
Split fraction:	0.940	

Water content data	C.F.(+3/8")	S.F.(-3/8")
Moist soil + tare (g):	1725.74	342.02
Dry soil + tare (g):	1664.90	313.89
Tare (g):	222.21	127.71
Water content (%):	4.2	15.1

Sieve	Accum. Wt. Ret. (g)	Grain Size (mm)	Percent Finer	
6"	-	150	-	
4"	-	100	-	
3"	-	75	100.0	
1.5"	464.93	37.5	98.0	
1"	661.04	25	97.1	
3/4"	975.40	19	95.7	
3/8"	1358.46	9.5	94.0	←Split
No.4	5.19	4.75	91.4	
No.10	11.88	2	88.0	
No.20	23.21	0.85	82.3	
No.40	35.36	0.425	76.2	
No.60	46.59	0.25	70.5	
No.100	60.56	0.15	63.4	
No.140	70.37	0.106	58.5	
No.200	79.33	0.075	54.0	



Gravel (%): 8.6
Sand (%): 37.4
Fines (%): 54.0

Entered by:_____
Reviewed:_____

Z:\PROJECTS\00733_GCD\026_Shoreline_Phase_4\[GSDv2.xlsm]2

Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

(ASTM D6913)

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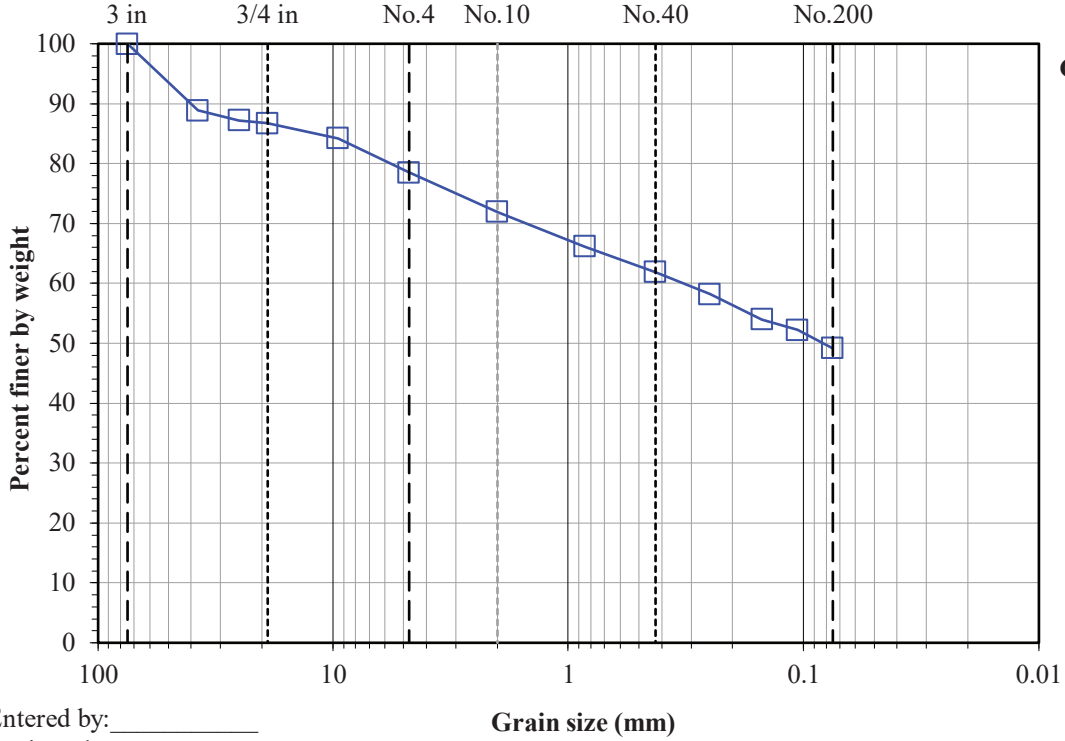
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/20/2023
By: KC

Boring No.: TP-6
Sample:
Depth: 3.0'
Description: Light brown clayey sand with gravel

	Moist	Dry
Split:	Yes	
Split sieve:	3/8"	
Total sample wt. (g):	18364.0	16146.2
+3/8" Coarse fraction (g):	2664.59	2549.65
-3/8" Split fraction (g):	204.04	176.71
Split fraction:	0.842	

Water content data	C.F.(+3/8")	S.F.(-3/8")
Moist soil + tare (g):	3090.38	389.05
Dry soil + tare (g):	2971.22	361.72
Tare (g):	327.92	185.01
Water content (%):	4.5	15.5

Sieve	Accum. Wt. Ret. (g)	Grain Size (mm)	Percent Finer	
6"	-	150	-	
4"	-	100	-	
3"	-	75	100.0	
1.5"	1801.21	37.5	88.8	
1"	2069.95	25	87.2	
3/4"	2142.79	19	86.7	
3/8"	2549.65	9.5	84.2	←Split
No.4	12.02	4.75	78.5	
No.10	25.81	2	71.9	
No.20	37.87	0.85	66.2	
No.40	46.82	0.425	61.9	
No.60	54.63	0.25	58.2	
No.100	63.45	0.15	54.0	
No.140	67.10	0.106	52.2	
No.200	73.51	0.075	49.2	



Gravel (%): 21.5
Sand (%): 29.3
Fines (%): 49.2

Comments:
These results are in nonconformance with Method D6913 because the minimum dry mass was not met.

Entered by:_____
Reviewed:_____

Z:\PROJECTS\00733_GCD\026_Shoreline_Phase_4\[GSDv2.xlsm]3

Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

(ASTM D6913)

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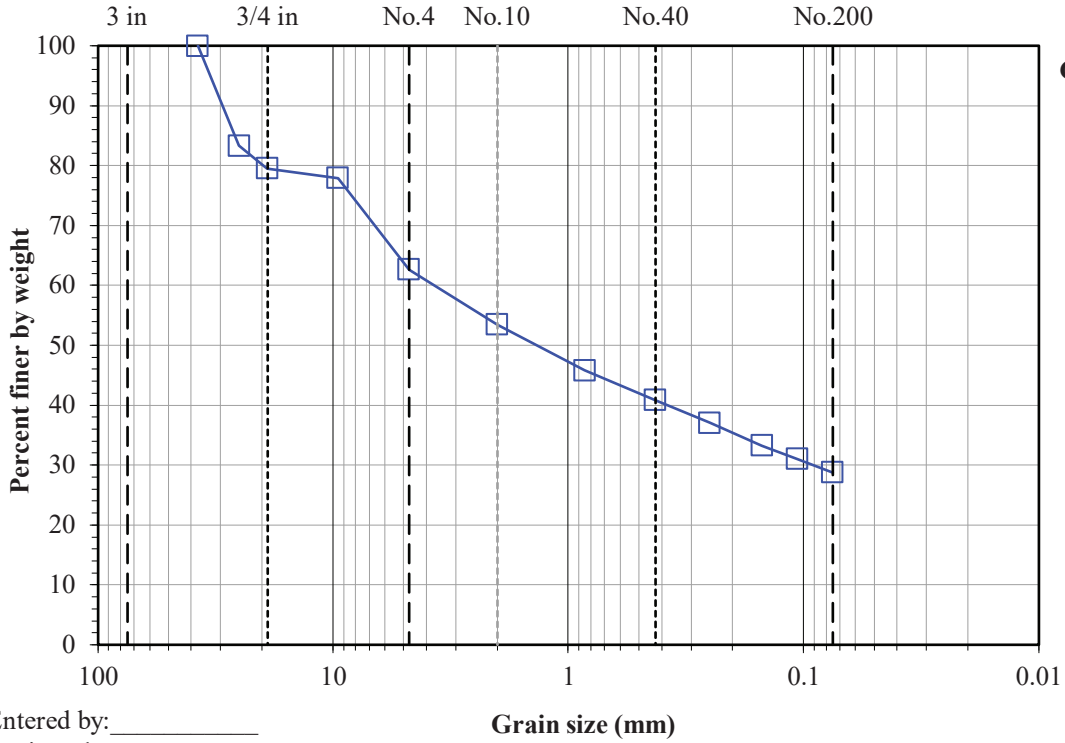
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/26/2023
By: SE

Boring No.: TP-6
Sample:
Depth: 15.0'
Description: Brown silty gravel with sand

Split:	Yes	
Split sieve:	3/8"	
	Moist	Dry
Total sample wt. (g):	1373.33	1261.88
+3/8" Coarse fraction (g):	287.75	278.55
-3/8" Split fraction (g):	235.69	213.49
Split fraction:	0.779	

Water content data	C.F.(+3/8")	S.F.(-3/8")
Moist soil + tare (g):	410.22	360.05
Dry soil + tare (g):	401.06	337.85
Tare (g):	123.64	124.36
Water content (%):	3.3	10.4

Sieve	Accum. Wt. Ret. (g)	Grain Size (mm)	Percent Finer	
6"	-	150	-	
4"	-	100	-	
3"	-	75	-	
1.5"	-	37.5	100.0	
1"	210.38	25	83.3	
3/4"	258.51	19	79.5	
3/8"	278.55	9.5	77.9	←Split
No.4	41.94	4.75	62.6	
No.10	67.08	2	53.4	
No.20	88.05	0.85	45.8	
No.40	101.57	0.425	40.9	
No.60	111.98	0.25	37.1	
No.100	122.39	0.15	33.3	
No.140	128.55	0.106	31.0	
No.200	134.73	0.075	28.7	



Gravel (%): 37.4
Sand (%): 33.9
Fines (%): 28.7

Comments:
These results are in nonconformance with Method D6913 because the minimum dry mass was not met.

Entered by:_____
Reviewed:_____

Z:\PROJECTS\00733_GCD\026_Shoreline_Phase_4\[GSDv2.xlsm]4

Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

(ASTM D6913)

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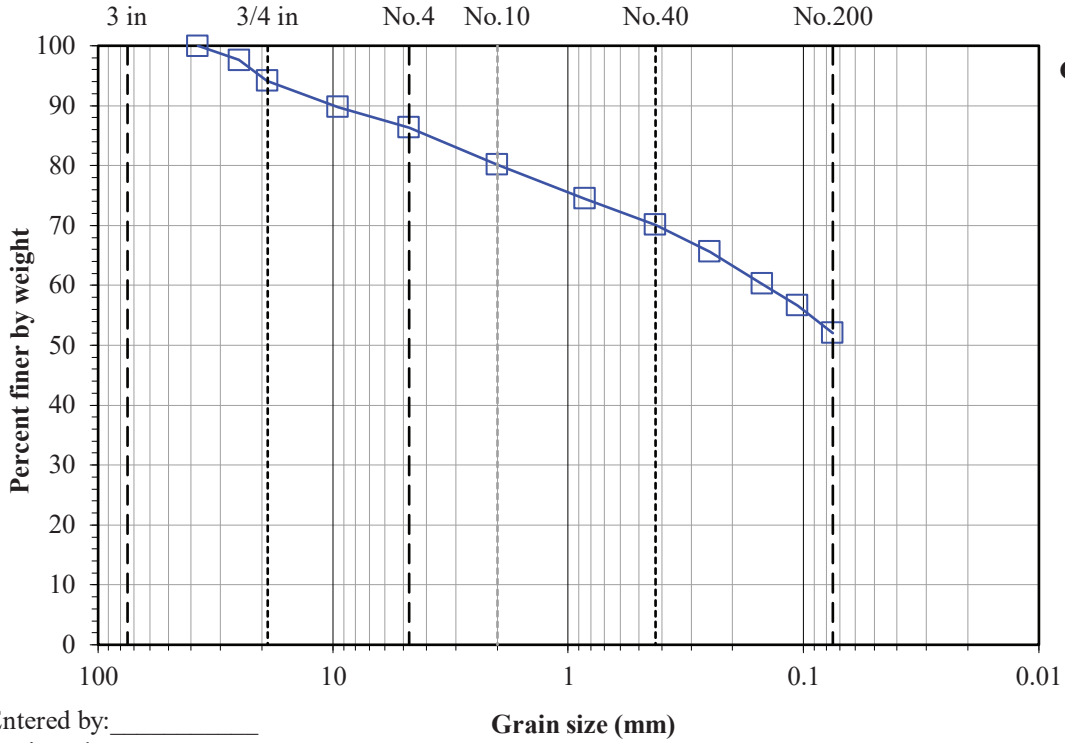
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/20/2023
By: RH

Boring No.: TP-7
Sample:
Depth: 13.0'
Description: Dark brown sandy silt

Split:	Yes	
Split sieve:	3/8"	
	Moist	Dry
Total sample wt. (g):	2846.03	2545.88
+3/8" Coarse fraction (g):	271.88	260.29
-3/8" Split fraction (g):	223.55	198.49
Split fraction:	0.898	

Water content data	C.F.(+3/8")	S.F.(-3/8")
Moist soil + tare (g):	398.65	344.50
Dry soil + tare (g):	387.06	319.44
Tare (g):	126.82	120.95
Water content (%):	4.5	12.6

Sieve	Accum. Wt. Ret. (g)	Grain Size (mm)	Percent Finer	
6"	-	150	-	
4"	-	100	-	
3"	-	75	-	
1.5"	-	37.5	100.0	
1"	60.62	25	97.6	
3/4"	148.40	19	94.2	
3/8"	260.29	9.5	89.8	←Split
No.4	7.61	4.75	86.3	
No.10	21.23	2	80.2	
No.20	33.75	0.85	74.5	
No.40	43.47	0.425	70.1	
No.60	53.41	0.25	65.6	
No.100	65.19	0.15	60.3	
No.140	73.27	0.106	56.6	
No.200	83.32	0.075	52.1	



Gravel (%): 13.7
Sand (%): 34.2
Fines (%): 52.1

Comments:
These results are in nonconformance with Method D6913 because the minimum dry mass was not met.

Entered by:_____
Reviewed:_____

Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

(ASTM D6913)

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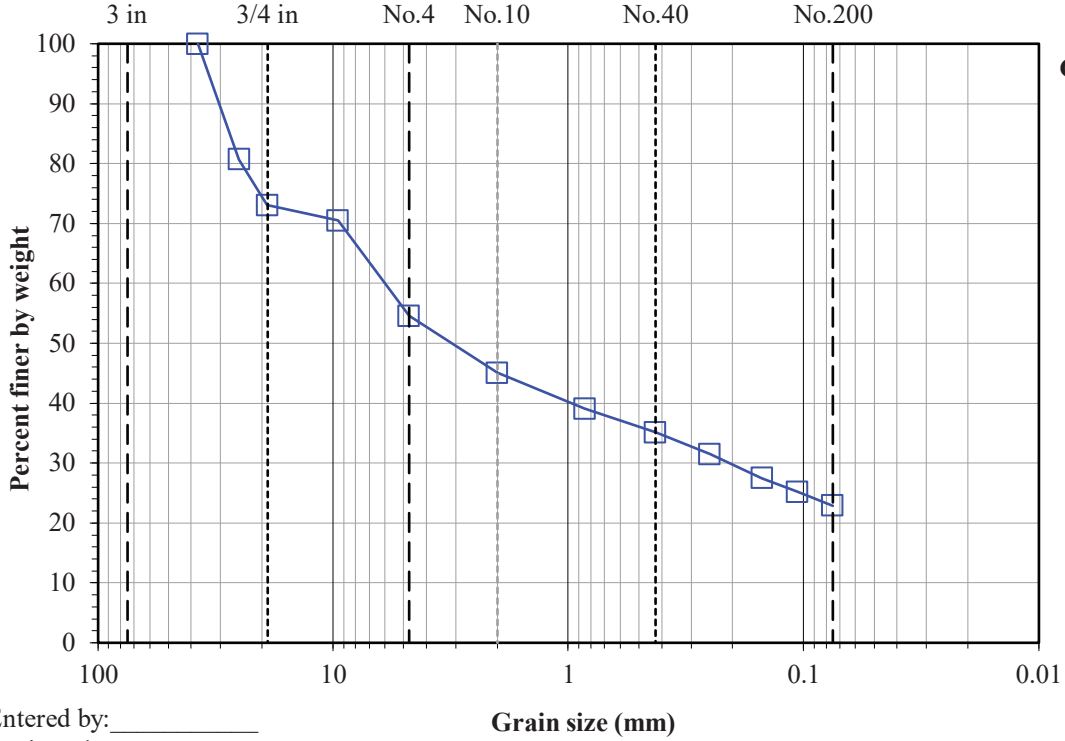
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/23/2023
By: SE

Boring No.: TP-12
Sample:
Depth: 12.0'
Description: Brown clayey gravel with sand

Split:	Yes	
Split sieve:	3/8"	
	Moist	Dry
Total sample wt. (g):	2473.77	2232.33
+3/8" Coarse fraction (g):	691.35	658.62
-3/8" Split fraction (g):	234.51	207.05
Split fraction:	0.705	

Water content data	C.F.(+3/8")	S.F.(-3/8")
Moist soil + tare (g):	905.54	386.02
Dry soil + tare (g):	872.81	358.56
Tare (g):	214.15	151.51
Water content (%):	5.0	13.3

Sieve	Accum. Wt. Ret. (g)	Grain Size (mm)	Percent Finer	
6"	-	150	-	
4"	-	100	-	
3"	-	75	-	
1.5"	-	37.5	100.0	
1"	431.62	25	80.7	
3/4"	601.04	19	73.1	
3/8"	658.62	9.5	70.5	←Split
No.4	46.81	4.75	54.6	
No.10	74.77	2	45.0	
No.20	92.27	0.85	39.1	
No.40	103.94	0.425	35.1	
No.60	114.51	0.25	31.5	
No.100	126.26	0.15	27.5	
No.140	133.12	0.106	25.2	
No.200	139.63	0.075	23.0	



Gravel (%): 45.4
Sand (%): 31.6
Fines (%): 23.0

Comments:
These results are in nonconformance with Method D6913 because the minimum dry mass was not met.

Entered by:_____
Reviewed:_____

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Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

(ASTM D6913)

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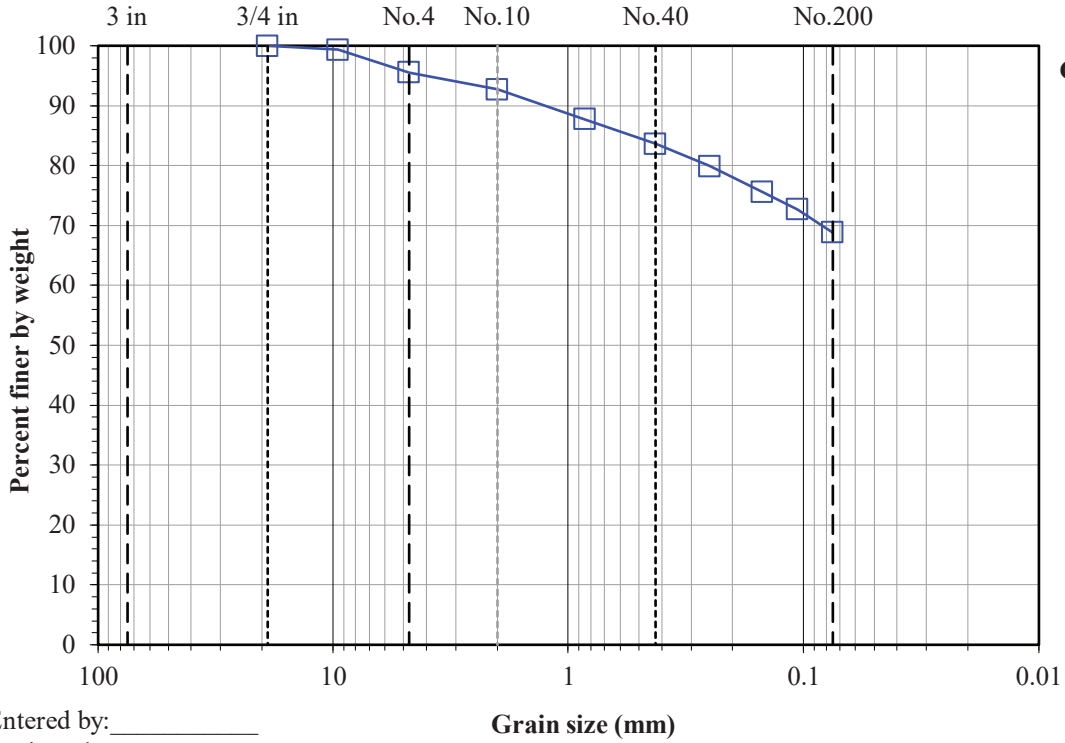
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/20/2023
By: CJ

Boring No.: TP-19
Sample:
Depth: 3.0'
Description: Dark brown sandy clay

Split:	Yes	
Split sieve:	3/8"	
	Moist	Dry
Total sample wt. (g):	2947.86	2671.68
+3/8" Coarse fraction (g):	18.60	18.03
-3/8" Split fraction (g):	273.14	247.44
Split fraction:	0.993	

Water content data	C.F.(+3/8")	S.F.(-3/8")
Moist soil + tare (g):	56.89	396.93
Dry soil + tare (g):	56.30	371.23
Tare (g):	37.49	123.79
Water content (%):	3.1	10.4

Sieve	Accum. Wt. Ret. (g)	Grain Size (mm)	Percent Finer	
6"	-	150	-	
4"	-	100	-	
3"	-	75	-	
1.5"	-	37.5	-	
1"	-	25	-	
3/4"	-	19	100.0	
3/8"	18.03	9.5	99.3	←Split
No.4	9.45	4.75	95.5	
No.10	16.46	2	92.7	
No.20	28.87	0.85	87.7	
No.40	39.14	0.425	83.6	
No.60	48.37	0.25	79.9	
No.100	59.01	0.15	75.6	
No.140	66.36	0.106	72.7	
No.200	75.92	0.075	68.9	



Gravel (%): 4.5
Sand (%): 26.7
Fines (%): 68.9

Entered by:_____
Reviewed:_____

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Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis

(ASTM D6913)

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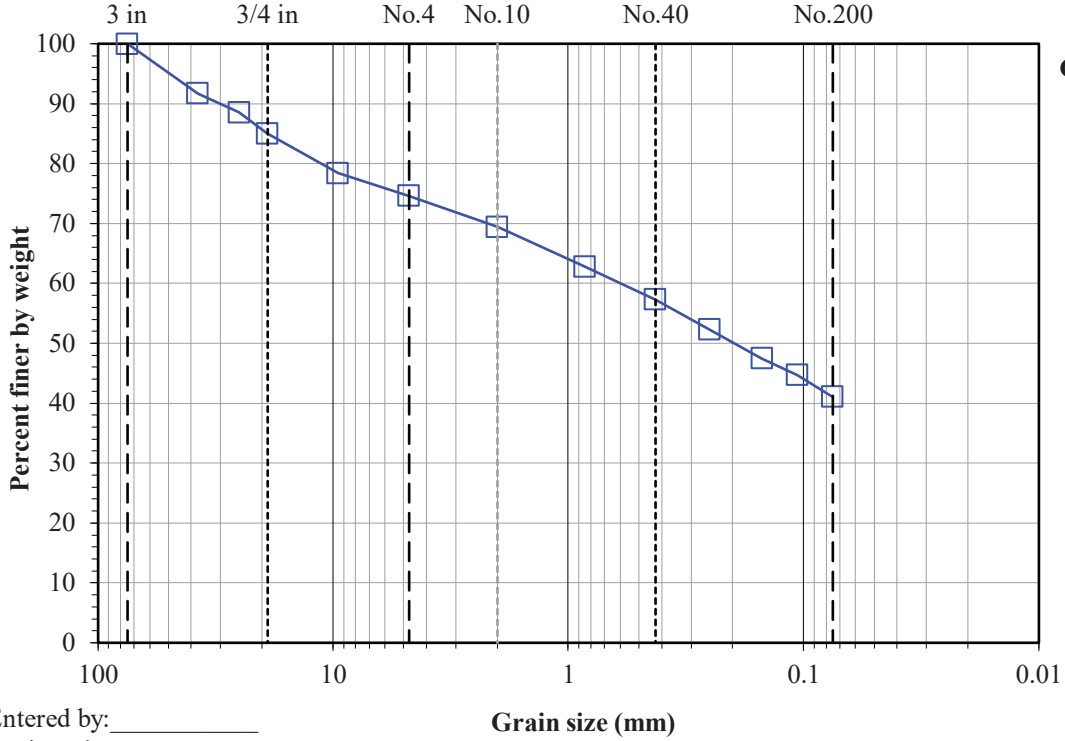
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/23/2023
By: RH

Boring No.: TP-20
Sample:
Depth: 13.0'
Description: Brown sandy clay with gravel

Split:	Yes	
Split sieve:	3/8"	
	Moist	Dry
Total sample wt. (g):	22209.24	19118.68
+3/8" Coarse fraction (g):	4343.88	4131.28
-3/8" Split fraction (g):	227.20	190.60
Split fraction:	0.784	

Water content data	C.F.(+3/8")	S.F.(-3/8")
Moist soil + tare (g):	1282.18	368.54
Dry soil + tare (g):	1234.62	331.94
Tare (g):	310.44	141.34
Water content (%):	5.1	19.2

Sieve	Accum. Wt. Ret. (g)	Grain Size (mm)	Percent Finer	
6"	-	150	-	
4"	-	100	-	
3"	-	75	100.0	
1.5"	1586.69	37.5	91.7	
1"	2187.70	25	88.6	
3/4"	2862.36	19	85.0	
3/8"	4131.28	9.5	78.4	←Split
No.4	9.21	4.75	74.6	
No.10	21.77	2	69.4	
No.20	37.93	0.85	62.8	
No.40	51.33	0.425	57.3	
No.60	63.50	0.25	52.3	
No.100	75.20	0.15	47.5	
No.140	81.99	0.106	44.7	
No.200	90.69	0.075	41.1	



Gravel (%): 25.4
Sand (%): 33.5
Fines (%): 41.1

Comments:
These results are in nonconformance with Method D6913 because the minimum dry mass was not met.

Entered by:_____
Reviewed:_____

Z:\PROJECTS\00733_GCD\026_Shoreline_Phase_4\[GSDv2.xlsm]8

Amount of Material in Soil Finer than the No. 200 (75µm) Sieve

(ASTM D1140)

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Project: **Shoreline - Phase 4**
No: **00733-026**
Location: Hideout
Date: 10/27/2023
By: RH/SE/KC

Sample Info.	Boring No.	TP-2	TP-2	TP-4	TP-5	TP-8	TP-9	TP-15	TP-16
	Sample								
	Depth	3.0'	8.0'	15.0'	10.0'	4.0'	5.0'	9.0'	8.5'
	Split	Yes	Yes	Yes	Yes	No	Yes	Yes	No
	Split Sieve*	3/8"	3/8"	3/8"	3/8"		3/8"	3/8"	3/8"
	Method	B	B	B	B	B	B	B	B
Specimen soak time (min)		410	390	360	350	360	420	540	380
Moist total sample wt. (g)		2398.09	1650.59	2358.95	814.86	247.87	994.68	3357.11	222.37
Moist coarse fraction (g)		57.20	55.18	13.59	25.07		25.11	68.48	
Moist split fraction + tare (g)		343.02	368.95	350.86	354.81		331.73	327.47	
Split fraction tare (g)		127.94	123.68	126.85	151.53		127.96	123.72	
Dry split fraction (g)		202.49	215.44	193.63	173.74		161.68	167.70	
Dry retained No. 200 + tare (g)		241.41	213.32	160.21	224.14	261.59	180.43	179.76	222.00
Wash tare (g)		127.94	123.68	126.85	151.53	210.55	127.96	123.72	124.07
No. 200 Dry wt. retained (g)		113.47	89.64	33.36	72.61	51.04	52.47	56.04	97.93
Split sieve* Dry wt. retained (g)		56.59	52.61	13.13	24.36		23.99	64.41	
Dry total sample wt. (g)		2260.45	1453.98	2040.41	699.38	209.31	793.29	2771.17	189.71
Coarse Fraction	Moist soil + tare (g)	181.15	179.79	51.55	153.29		152.94	106.28	
	Dry soil + tare (g)	180.54	177.22	51.09	152.58		151.82	102.21	
	Tare (g)	123.97	124.61	37.96	128.22		127.78	37.80	
	Water content (%)	1.08	4.89	3.50	2.91		4.66	6.32	
Split Fraction	Moist soil + tare (g)	343.02	368.95	350.86	354.81	458.42	331.73	327.47	346.44
	Dry soil + tare (g)	330.43	339.12	320.48	325.27	419.86	289.64	291.42	313.78
	Tare (g)	127.94	123.68	126.85	151.53	210.55	127.96	123.72	124.07
	Water content (%)	6.22	13.85	15.69	17.00	18.42	26.03	21.50	17.22
Percent passing split sieve* (%)		**97.5**	**96.4**	**99.4**	**96.5**		**97.0**	**97.7**	
Percent passing No. 200 sieve (%)		**42.9**	**56.3**	**82.2**	**56.2**	**75.6**	**65.5**	**65.0**	**48.4**
Comments:		These results are in nonconformance with Method D1140 because the minimum dry mass was not met.	These results are in nonconformance with Method D1140 because the minimum dry mass was not met.		These results are in nonconformance with Method D1140 because the minimum dry mass was not met.		These results are in nonconformance with Method D1140 because the minimum dry mass was not met.		

Entered by:_____

Reviewed:_____

Amount of Material in Soil Finer than the No. 200 (75µm) Sieve

(ASTM D1140)

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Project: **Shoreline - Phase 4**
No: **00733-026**
Location: Hideout
Date: 10/23/2023
By: RH/CJ

Sample Info.	Boring No.	TP-17	TP-18	TP-19					
	Sample						.		
	Depth	4.0'	3.0'	10.0'					
	Split	Yes	Yes	Yes					
	Split Sieve*	3/8"	3/8"	3/8"					
	Method	B	B	B					
	Specimen soak time (min)	380	370	500					
	Moist total sample wt. (g)	204.40	763.89	3574.05					
	Moist coarse fraction (g)	17.55	20.95	440.23					
	Moist split fraction + tare (g)	332.85	413.47	338.06					
	Split fraction tare (g)	128.45	127.55	128.33					
	Dry split fraction (g)	176.50	228.65	179.37					
	Dry retained No. 200 + tare (g)	187.71	205.94	217.72					
	Wash tare (g)	128.45	127.55	128.33					
	No. 200 Dry wt. retained (g)	59.26	78.39	89.39					
	Split sieve* Dry wt. retained (g)	16.81	19.88	412.92					
	Dry total sample wt. (g)	178.16	614.01	3093.10					
Coarse Fraction	Moist soil + tare (g)	42.56	43.28	564.23					
	Dry soil + tare (g)	41.82	42.21	536.92					
	Tare (g)	25.01	22.33	124.00					
	Water content (%)	4.40	5.38	6.61					
Split Fraction	Moist soil + tare (g)	332.85	413.47	338.06					
	Dry soil + tare (g)	304.95	356.20	307.70					
	Tare (g)	128.45	127.55	128.33					
	Water content (%)	15.81	25.05	16.93					
Percent passing split sieve* (%)		**90.6**	**96.8**	**86.7**					
Percent passing No. 200 sieve (%)		**60.2**	**63.6**	**43.5**					

Comments:

These results are in nonconformance with Method D1140 because the minimum dry mass was not met.	These results are in nonconformance with Method D1140 because the minimum dry mass was not met.

Entered by:_____

Reviewed:_____

Laboratory Compaction Characteristics of Soil

(ASTM D698 / D1557)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/17/2023
By: JJ

Boring No.: TP-1
Sample:
Depth: 7.0'
Sample Description: Red sandy clay with gravel
Engineering Classification: Not requested
As-received water content (%): Not requested

Method: ASTM D698 B
Mold Id. INC 2
Mold volume (ft^3): 0.0333

Preparation method: Moist
Rammer: Mechanical-circular face
Rock Correction: Yes * See results below
Percent fraction retained, Pc (%) 6.5
Percent fraction passing, Pf (%) 93.5

Optimum water content (%): 20.1
Maximum dry unit weight (pcf): 103.3

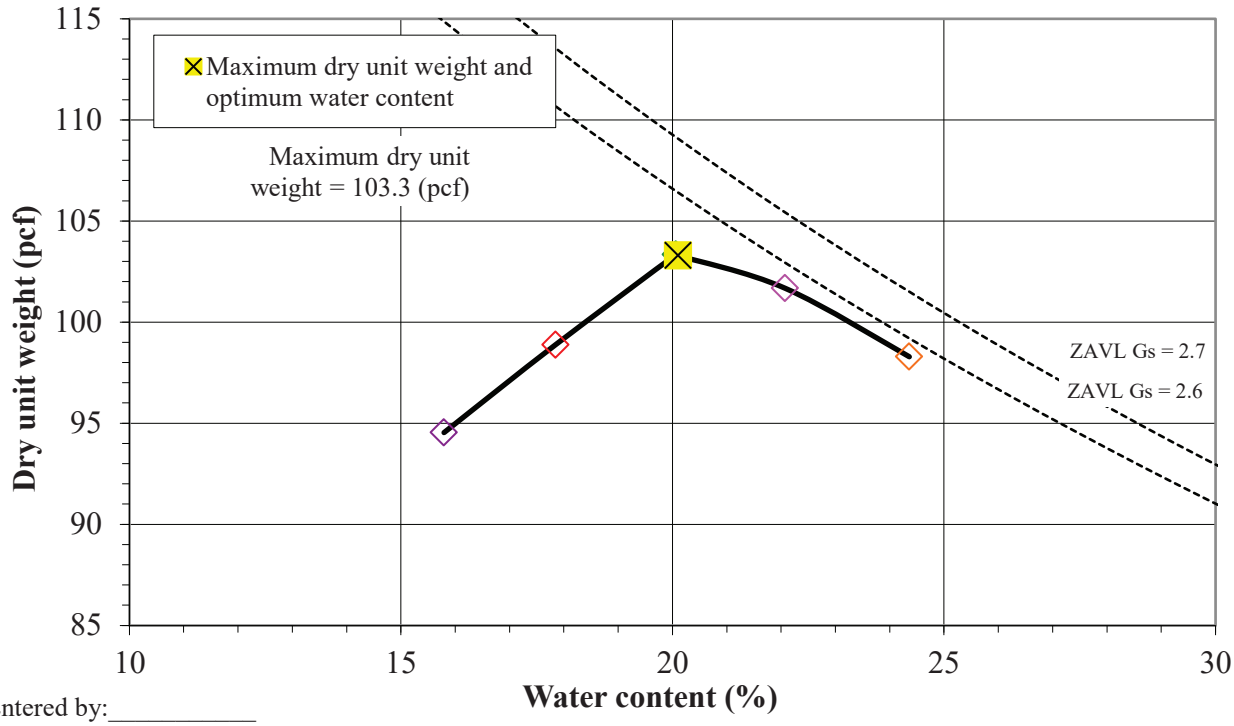
Point Number	+2%	+4%	+6%	+8%	+10%			
Wt. Sample + Mold (g)	5872.3	5978.8	6092.6	6093.4	6064.9			
Wt. of Mold (g)	4220.3	4220.3	4220.3	4220.3	4220.3			
Wet Unit Wt., γ_m (pcf)	109.5	116.5	124.1	124.1	122.2			
Wet Soil + Tare (g)	407.15	485.80	605.86	556.34	475.41			
Dry Soil + Tare (g)	367.27	431.57	524.64	477.93	406.15			
Tare (g)	114.70	127.69	119.78	122.68	121.79			
Water Content, w (%)	**15.8**	**17.8**	**20.1**	**22.1**	**24.4**			
Dry Unit Wt., γ_d (pcf)	**94.5**	**98.9**	**103.3**	**101.7**	**98.3**			

*Correction of Unit Weight and Water Content for Soils Containing Oversize Particles

(ASTM D4718)

Corrected water content (%): 18.9
Corrected dry unit weight (pcf): 105.9

Oversized fraction, +3/8-in. (%): 6.5
Water content, +3/8-in. (%): 1.9
Sieve for oversized fraction: 3/8-in.
Bulk specific gravity, Gs: 2.65 Assumed



Entered by:_____

Reviewed:_____

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Laboratory Compaction Characteristics of Soil

(ASTM D698 / D1557)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/19/2023
By: KC

Boring No.: TP-5
Sample:
Depth: 6.0'
Sample Description: Brown sandy clay
Engineering Classification: Not requested
As-received water content (%): Not requested

Method: ASTM D1557 B
Mold Id. INC 3
Mold volume (ft^3): 0.0333

Preparation method: Moist
Rammer: Mechanical-circular face
Rock Correction: Yes * See results below
Percent fraction retained, Pc (%) 6.0
Percent fraction passing, Pf (%) 94.0

Optimum water content (%): 14.8
Maximum dry unit weight (pcf): 113.5

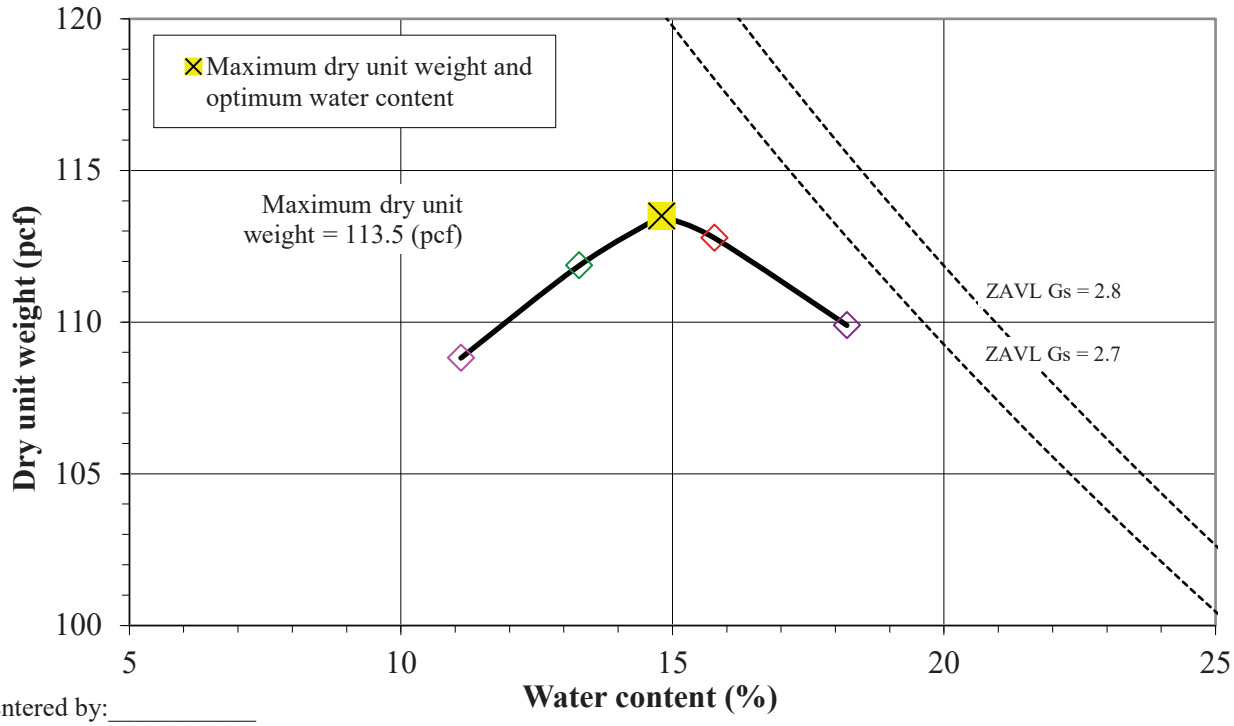
Point Number	+2%	As is	-2%	-4%				
Wt. Sample + Mold (g)	6167.3	6177.2	6119.3	6031.4				
Wt. of Mold (g)	4206.5	4206.5	4206.5	4206.5				
Wet Unit Wt., γ_m (pcf)	129.9	130.6	126.7	120.9				
Wet Soil + Tare (g)	533.35	542.10	521.08	437.46				
Dry Soil + Tare (g)	470.75	494.62	474.93	406.54				
Tare (g)	127.01	193.56	127.47	128.08				
Water Content, w (%)	**18.2**	**15.8**	**13.3**	**11.1**				
Dry Unit Wt., γ_d (pcf)	**109.9**	**112.8**	**111.9**	**108.8**				

*Correction of Unit Weight and Water Content for Soils Containing Oversize Particles

(ASTM D4718)

Corrected water content (%): 14.2
Corrected dry unit weight (pcf): 115.7

Oversized fraction, +3/8-in. (%): 6.0
Water content, +3/8-in. (%): 4.2
Sieve for oversized fraction: 3/8-in.
Bulk specific gravity, Gs: 2.65 Assumed



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Reviewed:_____

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Laboratory Compaction Characteristics of Soil

(ASTM D698 / D1557)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/25/2023
By: KC

Boring No.: TP-6
Sample:
Depth: 3.0'
Sample Description: Light brown clayey sand with gravel
Engineering Classification: Not requested
As-received water content (%): Not requested

Method: ASTM D1557 B
Mold Id. INC 3
Mold volume (ft^3): 0.0333

Preparation method: Moist
Rammer: Mechanical-circular face
Rock Correction: Yes * See results below
Percent fraction retained, Pc (%) 15.8
Percent fraction passing, Pf (%) 84.2

Optimum water content (%): 14.9
Maximum dry unit weight (pcf): 116.6

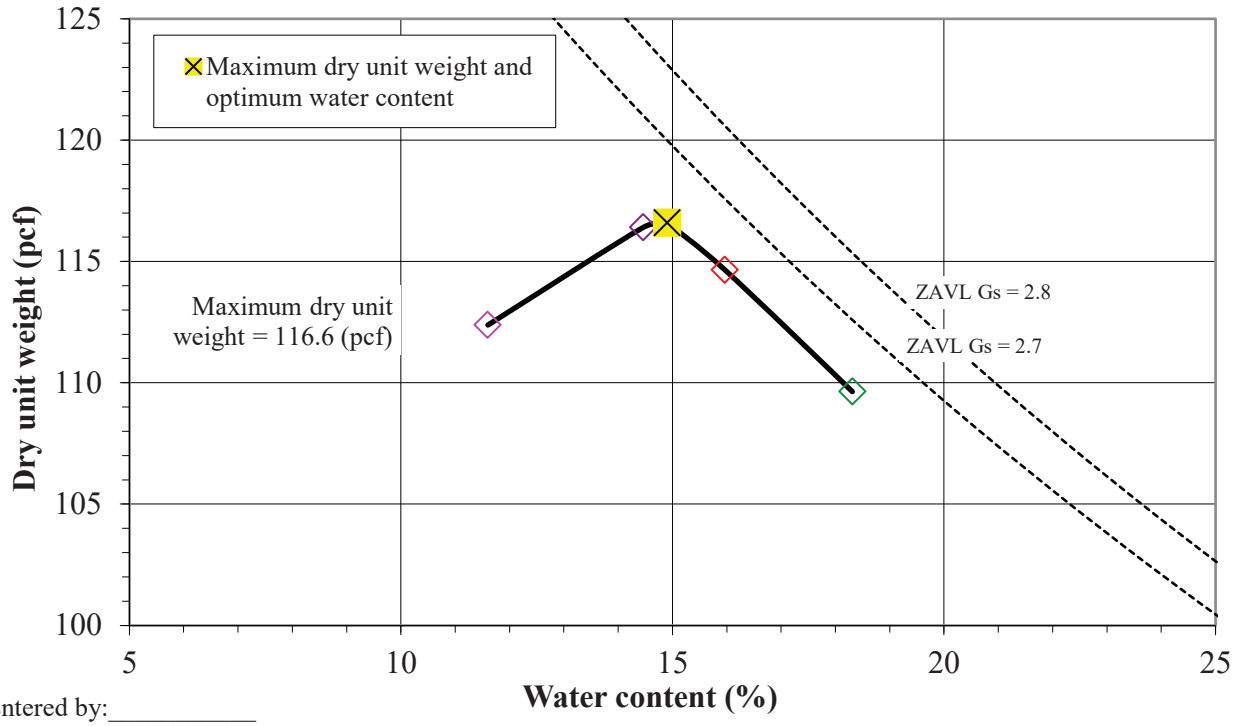
Point Number	-2%	As is	+2%	-4%				
Wt. Sample + Mold (g)	6217.7	6213.5	6164.5	6099.6				
Wt. of Mold (g)	4206.6	4206.6	4206.6	4206.6				
Wet Unit Wt., γ_m (pcf)	133.2	133.0	129.7	125.4				
Wet Soil + Tare (g)	511.19	564.90	552.99	461.08				
Dry Soil + Tare (g)	462.66	504.20	486.24	426.53				
Tare (g)	127.01	123.89	121.71	128.61				
Water Content, w (%)	**14.5**	**16.0**	**18.3**	**11.6**				
Dry Unit Wt., γ_d (pcf)	**116.4**	**114.7**	**109.6**	**112.4**				

*Correction of Unit Weight and Water Content for Soils Containing Oversize Particles

(ASTM D4718)

Corrected water content (%): 13.3
Corrected dry unit weight (pcf): 122.3

Oversized fraction, +3/8-in. (%): 15.8
Water content, +3/8-in. (%): 4.5
Sieve for oversized fraction: 3/8-in.
Bulk specific gravity, Gs: 2.65 Assumed



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Reviewed:_____

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Laboratory Compaction Characteristics of Soil

(ASTM D698 / D1557)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/25/2023
By: KC

Boring No.: TP-20
Sample:
Depth: 13.0'
Sample Description: Brown sandy clay with gravel
Engineering Classification: Not requested
As-received water content (%): Not requested

Method: ASTM D1557 B
Mold Id. INC 1
Mold volume (ft^3): 0.0333

Preparation method: Moist
Rammer: Mechanical-circular face
Rock Correction: Yes * See results below
Percent fraction retained, Pc (%) 21.6
Percent fraction passing, Pf (%) 78.4

Optimum water content (%): 15.5
Maximum dry unit weight (pcf): 114.0

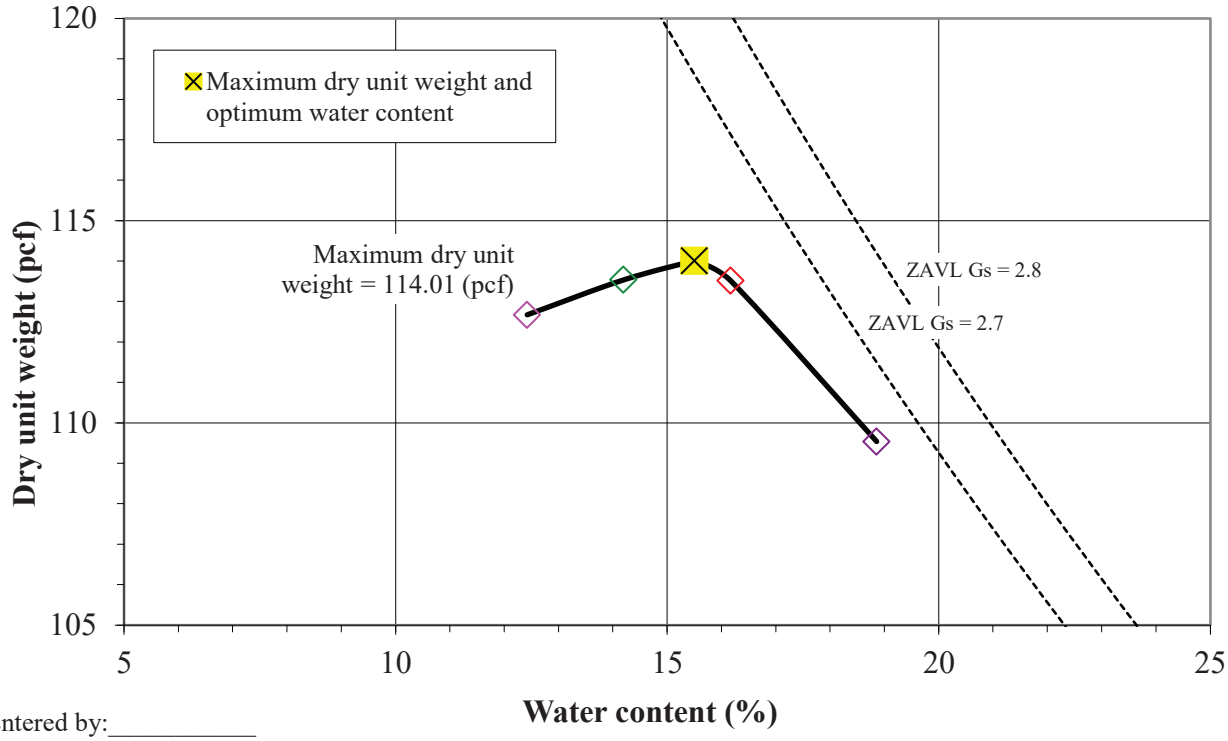
Point Number	As is	-2%	-4%	-6%				
Wt. Sample + Mold (g)	6184.1	6209.5	6176.0	6130.9				
Wt. of Mold (g)	4217.4	4217.4	4217.4	4217.4				
Wet Unit Wt., γ_m (pcf)	130.2	131.9	129.7	126.7				
Wet Soil + Tare (g)	479.01	540.01	417.63	602.02				
Dry Soil + Tare (g)	425.31	482.80	380.87	555.42				
Tare (g)	140.49	128.86	121.88	180.26				
Water Content, w (%)	**18.9**	**16.2**	**14.2**	**12.4**				
Dry Unit Wt., γ_d (pcf)	**109.5**	**113.5**	**113.5**	**112.7**				

*Correction of Unit Weight and Water Content for Soils Containing Oversize Particles

(ASTM D4718)

Corrected water content (%): 13.3
Corrected dry unit weight (pcf): 122.2

Oversized fraction, +3/8-in. (%): 21.6
Water content, +3/8-in. (%): 5.1
Sieve for oversized fraction: 3/8-in.
Bulk specific gravity, Gs: 2.65 Assumed



Entered by:_____
Reviewed:_____

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California Bearing Ratio

(ASTM D 1883)

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Project: Shoreline - Phase 4
Number: 00733-026
Location: Hideout
Date: 10/23/2023
By: JJ

Boring No.: TP-1
Sample:
Depth: 7.0'
Original Method: ASTM D698 B
Engineering Classification: Not requested
Condition of Sample: Soaked
Scalp and Replace: No

Maximum Dry Unit Weight (pcf): 103.3
Optimum Water Content (%): 20.1
Relative Compaction (%): 100.2
0.1 in. CBR (%): 7.7
0.2 in. CBR (%): 7.1

As Compacted Data			Before	After
Mold Id.	B	Wet Soil + Tare (g)	966.77	1250.88
Wt. of Mold + Sample (g)	11409.1	Dry Soil + Tare (g)	843.21	1099.03
Wt. of Mold (g)	7190.4	Tare (g)	221.71	324.08
Dry Unit Weight (pcf)	103.5	Water Content (%)	19.9	19.6
After Soaking Data			**Average**	**Top 1 in.**
Wt. of Mold + Sample (g)	11484.6	Wet Soil + Tare (g)	1023.69	493.03
Dry Unit Weight (pcf)	102.2	Dry Soil + Tare (g)	865.04	420.36
		Tare (g)	165.98	123.72
		Water Content (%)	22.7	24.5

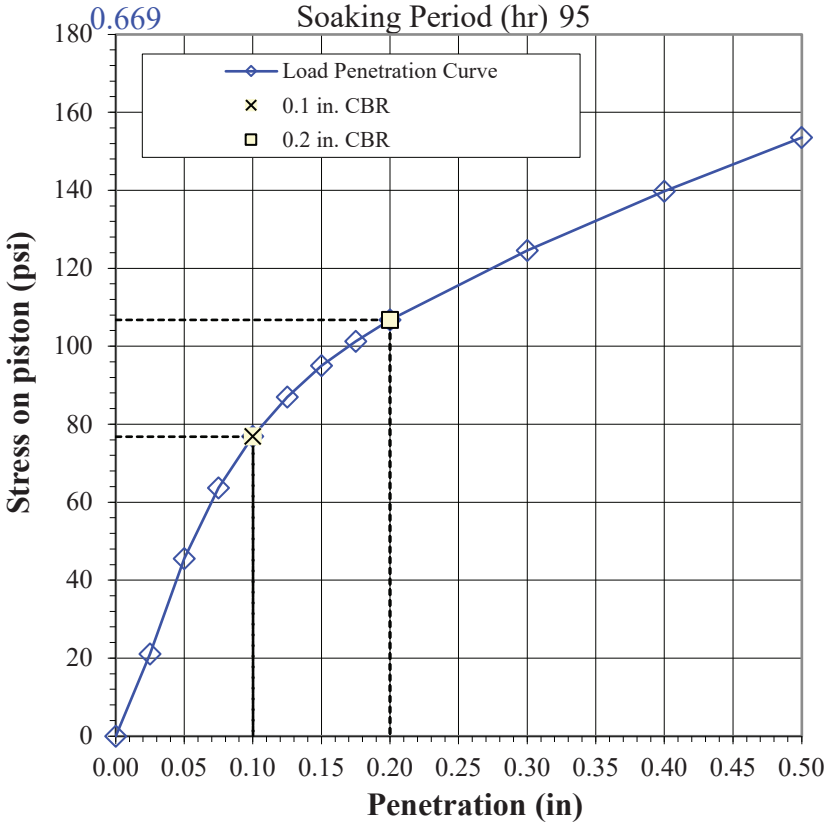
Swell Data

Date	Time	Dial		
10/23/2023	13:43	0.639	Surcharge (psf)	50
10/27/2023	12:56	0.669	Swell (%)	0.65
			Soaking Period (hr)	95

Penetration Data	Piston ID	CBR T1

Zero load (lb) = 0
Area of Piston (in^2) = 3.0

Penetration (in.)	Raw Load (lb)	Piston Stress (psi)	Std. Stress (psi)
0.000	0	0	
0.025	63	21	
0.050	137	46	
0.075	191	64	
0.100	231	77	1000
0.125	261	87	1125
0.150	285	95	1250
0.175	304	101	1375
0.200	320	107	1500
0.300	374	125	1900
0.400	419	140	2300
0.500	461	154	2600



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One-Dimensional Consolidation Properties of Soils

(ASTM D2435)

Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 11/2/2023
By: BRR/CJ

Boring No.: TP-8
Sample:
Depth: 5.0'
Sample Description: Brown clay
Engineering Classification: Not requested
Sample type: Undisturbed-trimmed from thin-wall

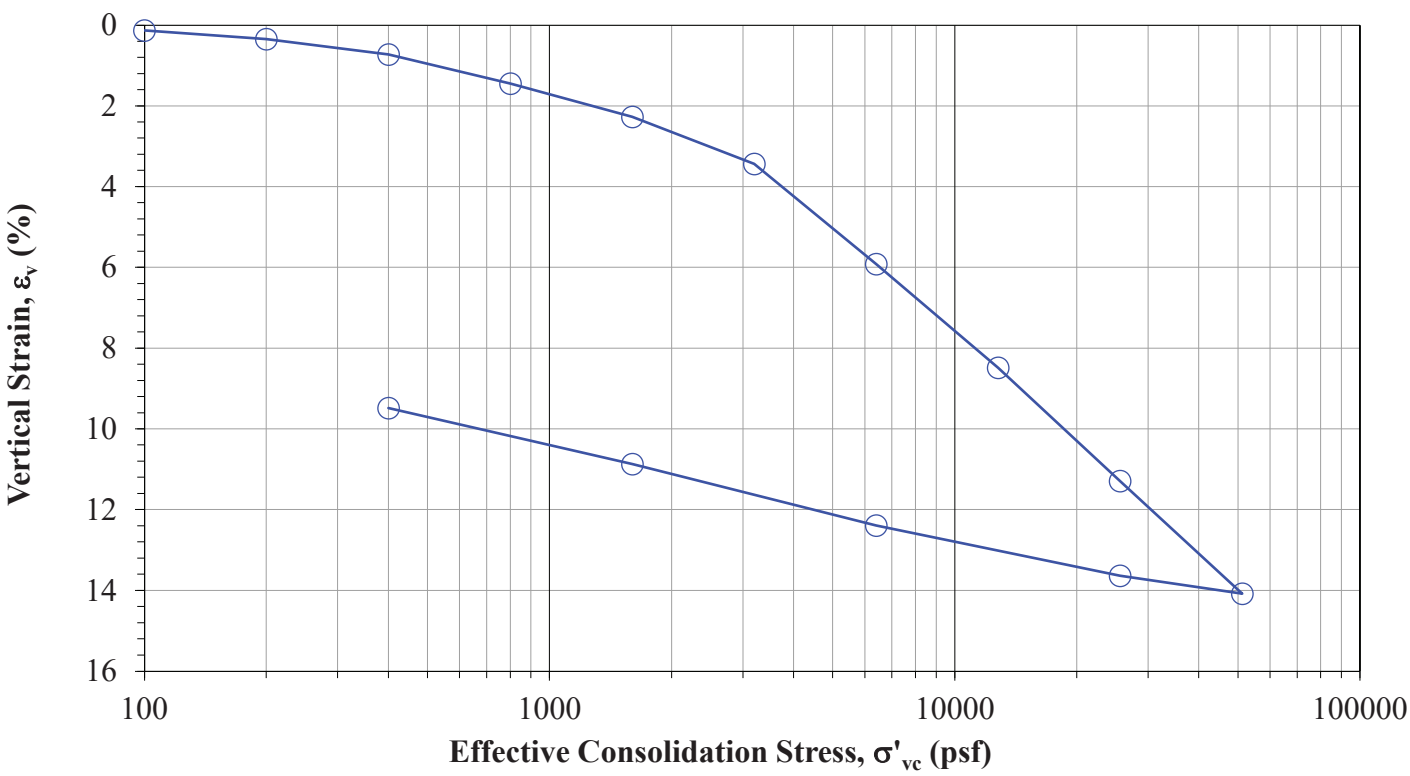
Consolidometer No.:	1	
Test method:	A	
Inundation stress (psf), timing:	100	Beginning
Specific gravity, G_s	2.70	Assumed

Water type used for inundation Tap

	Initial (o)	Final (f)
Sample height, H (in.)	0.917	0.830
Sample diameter, D (in.)	2.412	2.412
Wt. rings + wet soil (g)	177.94	180.16
Wt. rings/tare (g)	46.57	46.57
Moist unit wt., γ_m (pcf)	119.4	134.2
Wet soil + tare (g)	364.80	256.71
Dry soil + tare (g)	343.21	234.90
Tare (g)	218.48	121.85
Water content, w (%)	17.3	19.3
Dry unit wt., γ_d (pcf)	101.8	112.5
Saturation	0.71	1.00

*Note: c_v, c_c, c_r, and σ_p' to be determined by Geotechnical Engineer.

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.0000	0.00	0.9170	0.655
100	0.0012	0.13	0.9158	0.653
200	0.0032	0.35	0.9138	0.650
400	0.0067	0.73	0.9103	0.643
800	0.0133	1.44	0.9038	0.632
1600	0.0209	2.27	0.8962	0.618
3200	0.0315	3.44	0.8855	0.599
6400	0.0543	5.92	0.8628	0.558
12800	0.0779	8.49	0.8392	0.515
25600	0.1036	11.29	0.8135	0.469
51200	0.1291	14.08	0.7879	0.422
25600	0.1251	13.64	0.7920	0.430
6400	0.1137	12.39	0.8034	0.450
1600	0.0997	10.87	0.8173	0.475
400	0.0870	9.49	0.8300	0.498



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One-Dimensional Consolidation Properties of Soils

(ASTM D2435)

Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/23/2023
By: CJ

Boring No.: TP-14
Sample:
Depth: 5.0'
Sample Description: Brown clay
Engineering Classification: Not requested
Sample type: Undisturbed-trimmed from thin-wall

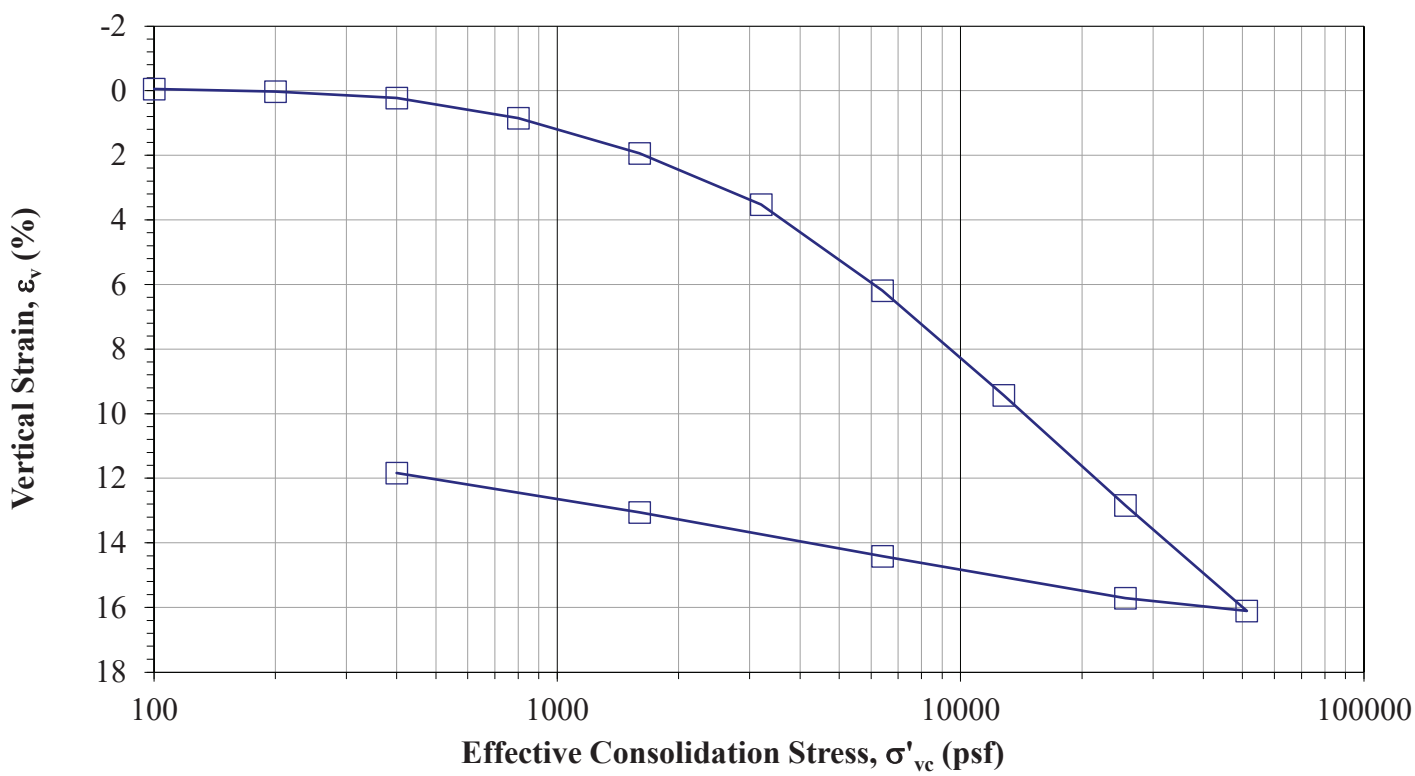
Test method:	A	
Inundation stress (psf), timing:	100	Beginning
Specific gravity, G_s	2.70	Assumed

Water type used for inundation Tap

	Initial (o)	Final (f)
Sample height, H (in.)	0.922	0.813
Sample diameter, D (in.)	2.424	2.424
Wt. rings + wet soil (g)	168.50	178.13
Wt. rings/tare (g)	42.41	42.41
Moist unit wt., γ_m (pcf)	112.9	137.83
Wet soil + tare (g)	270.70	253.23
Dry soil + tare (g)	254.13	231.01
Tare (g)	123.55	126.69
Water content, w (%)	12.7	21.3
Dry unit wt., γ_d (pcf)	100.2	113.6
Saturation	0.50	1.00

*Note: C_v, C_c, C_r, and σ_p' to be determined by Geotechnical Engineer.

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.0000	0.00	0.9220	0.6825
100	-0.0005	-0.05	0.9225	0.6834
200	0.0003	0.03	0.9217	0.6820
400	0.0021	0.23	0.9199	0.6787
800	0.0078	0.85	0.9142	0.6682
1600	0.0179	1.94	0.9041	0.6499
3200	0.0325	3.53	0.8895	0.6231
6400	0.0570	6.19	0.8650	0.5784
12800	0.0870	9.43	0.8350	0.5238
25600	0.1184	12.84	0.8036	0.4664
51200	0.1485	16.11	0.7735	0.4115
25600	0.1449	15.72	0.7771	0.4181
6400	0.1329	14.41	0.7891	0.4400
1600	0.1204	13.06	0.8016	0.4628
400	0.1091	11.83	0.8129	0.4834



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One-Dimensional Consolidation Properties of Soils

(ASTM D2435)

Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/31/2023
By: BRR/CJ

Boring No.: TP-18
Sample:
Depth: 8.5'
Sample Description: Brown clay
Engineering Classification: Not requested
Sample type: Undisturbed-trimmed from thin-wall

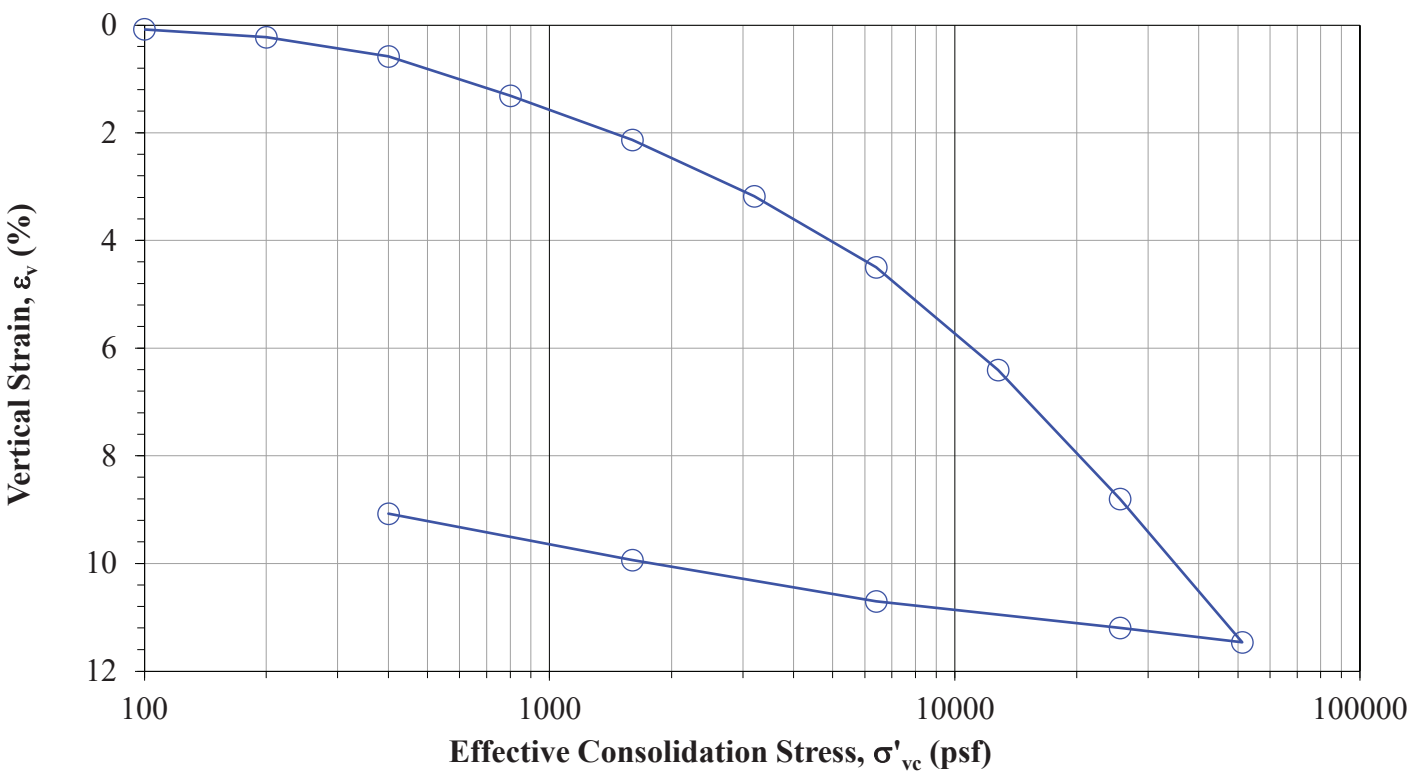
Consolidometer No.:	2	
Test method:	A	
Inundation stress (psf), timing:	100	Beginning
Specific gravity, G_s	2.70	Assumed

Water type used for inundation Tap

	Initial (o)	Final (f)
Sample height, H (in.)	0.912	0.829
Sample diameter, D (in.)	2.423	2.423
Wt. rings + wet soil (g)	177.76	180.89
Wt. rings/tare (g)	41.66	41.66
Moist unit wt., γ_m (pcf)	123.3	138.7
Wet soil + tare (g)	355.55	264.77
Dry soil + tare (g)	339.39	246.43
Tare (g)	213.88	127.91
Water content, w (%)	12.9	15.5
Dry unit wt., γ_d (pcf)	109.2	120.1
Saturation	0.64	1.00

*Note: c_v, c_c, c_r, and σ_p' to be determined by Geotechnical Engineer.

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.0000	0.00	0.9120	0.543
100	0.0007	0.08	0.9113	0.542
200	0.0021	0.22	0.9100	0.540
400	0.0053	0.58	0.9067	0.534
800	0.0120	1.31	0.9001	0.523
1600	0.0195	2.13	0.8926	0.510
3200	0.0290	3.18	0.8830	0.494
6400	0.0410	4.50	0.8710	0.474
12800	0.0585	6.41	0.8536	0.444
25600	0.0803	8.80	0.8318	0.407
51200	0.1046	11.46	0.8075	0.366
25600	0.1021	11.20	0.8099	0.370
6400	0.0976	10.70	0.8144	0.378
1600	0.0906	9.93	0.8214	0.390
400	0.0828	9.07	0.8293	0.403



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Collapse/Swell Potential of Soils

(ASTM D4546 Method B)

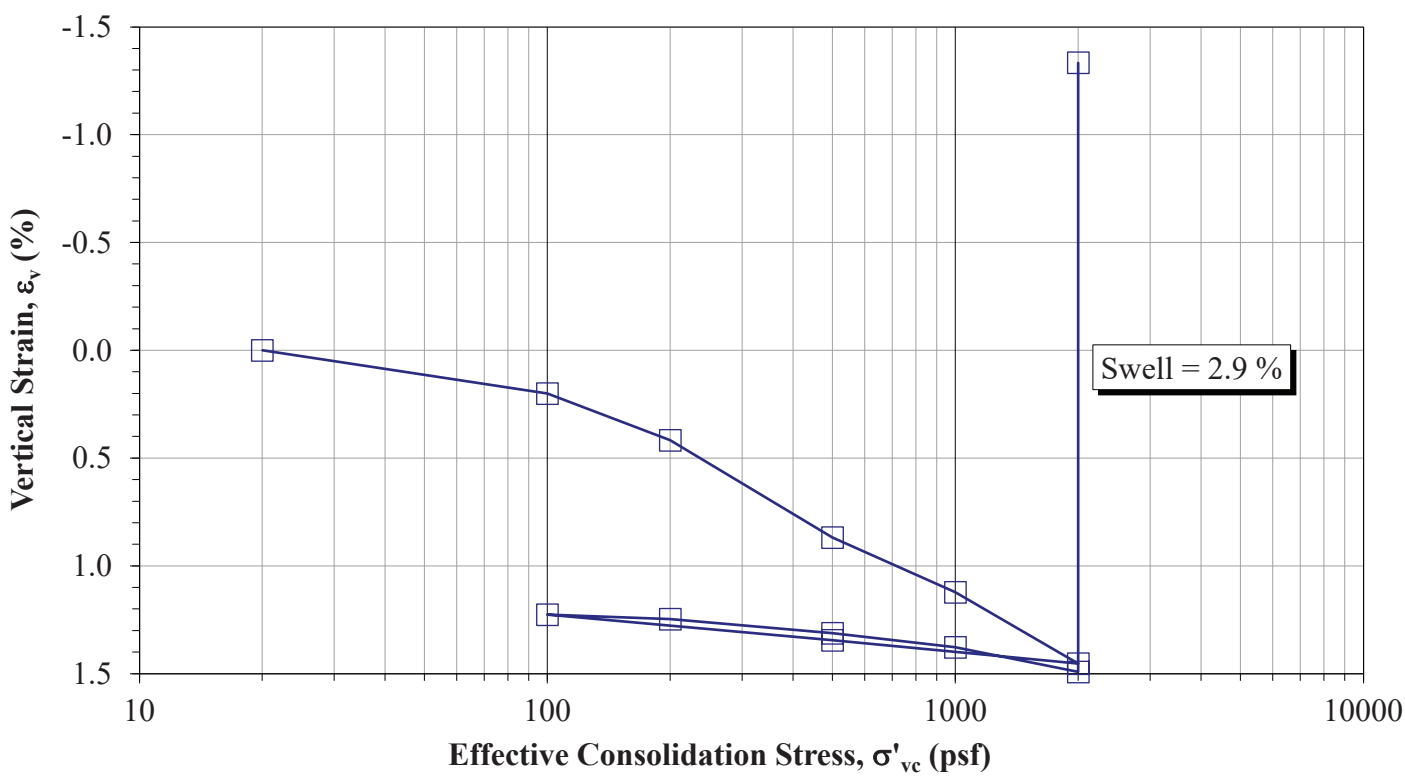
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/24/2023
By: CJ

Boring No.: TP-1
Sample:
Depth: 4.0'
Sample Description: Brown clay
Engineering Classification: Not requested
Sample type: Undisturbed-trimmed from thin-wall

Consolidometer No.:	3	
Specific gravity, G_s	2.70	Assumed
Swell (%)	2.9	
Swell stress (psf)	2000	
Water type used for inundation	Tap	

	Initial (o)	Final (f)
Sample height, H (in.)	0.922	0.934
Sample diameter, D (in.)	2.424	2.424
Mass rings + wet soil (g)	178.84	182.86
Mass rings/tare (g)	42.41	42.41
Moist unit wt., γ_m (pcf)	122.15	124.10
Wet soil + tare (g)	364.10	268.19
Dry soil + tare (g)	334.57	237.77
Tare (g)	211.99	128.15
Water content, w (%)	24.1	27.8
Dry unit wt., γ_d (pcf)	98.4	97.1
Saturation	91.3	100.0

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.00000	0.00	0.9220	0.712
20	0.00000	0.00	0.9220	0.712
100	0.00185	0.20	0.9202	0.709
200	0.00385	0.42	0.9182	0.705
500	0.00800	0.87	0.9140	0.697
1000	0.01035	1.12	0.9117	0.693
2000	0.01340	1.45	0.9086	0.687
500	0.01240	1.34	0.9096	0.689
100	0.01130	1.23	0.9107	0.691
200	0.01150	1.25	0.9105	0.691
500	0.01210	1.31	0.9099	0.690
1000	0.01270	1.38	0.9093	0.689
2000	0.01375	1.49	0.9083	0.687
2000	-0.01230	-1.33	0.9343	0.735



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Reviewed: _____

Load to Prevent Swell of Cohesive Soils

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 11/1/2023
By: PW

Boring No.: TP-1
Sample:
Depth: 7.0'
Sample Description: Red sandy clay with gravel
Engineering Classification: Not requested
Sample type: Laboratory compacted

Compaction specifications: Provided by client

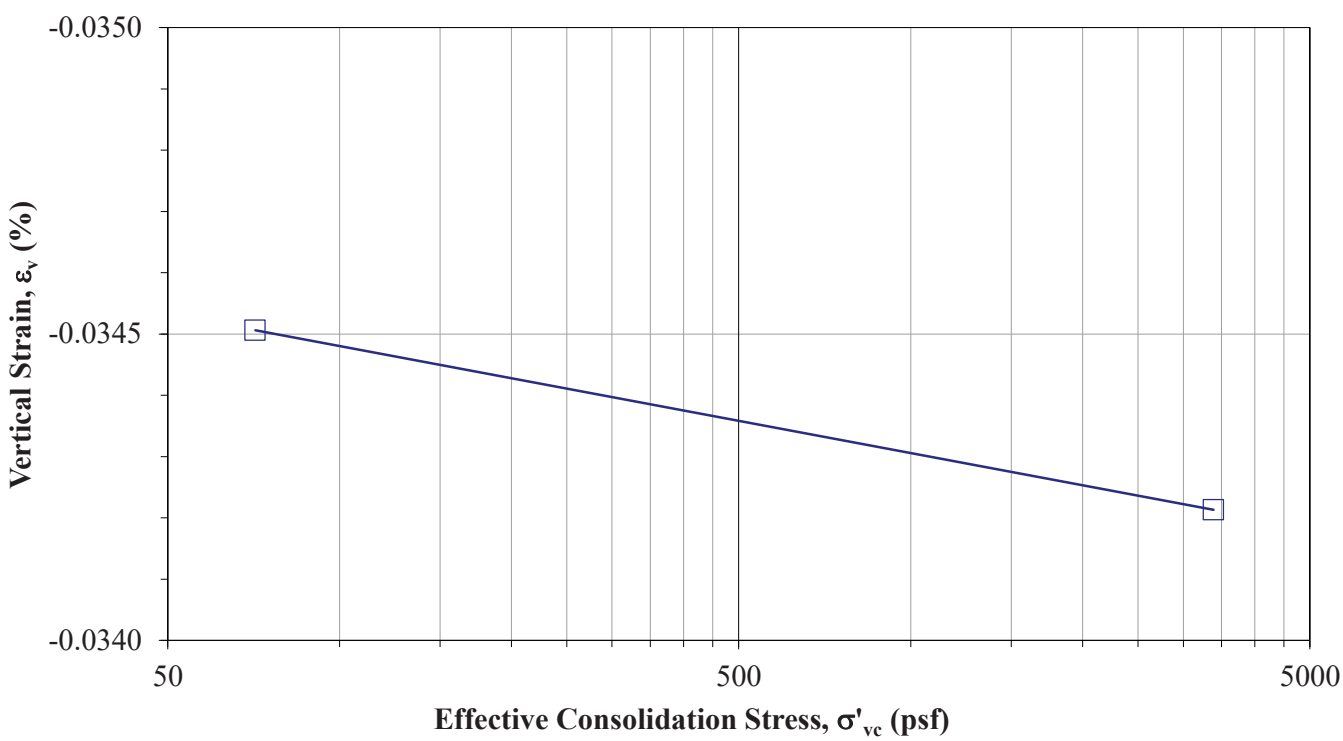
Dry unit weight: 110 pcf
at 5.8 (%) w

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.0000	0.00	0.9210	0.531
71	-0.0003	-0.03	0.9213	0.532
3390	-0.0003	-0.03	0.9213	0.532

Inundation stress (psf), timing:	Seating	Beginning
Specific gravity, G_s	2.70	Assumed

	Initial (o)	Final (f)
Sample height, H (in.)	0.921	0.921
Sample diameter, D (in.)	2.410	2.410
Mass rings + wet soil (g)	173.34	195.39
Mass rings/tare (g)	44.98	44.98
Moist unit wt., γ_m (pcf)	116.4	136.3
Wet soil + tare (g)	75.84	277.44
Dry soil + tare (g)	73.01	248.76
Tare (g)	23.80	128.86
Water content, w (%)	5.8	23.9
Dry unit wt., γ_d (pcf)	110.1	110.0
Saturation	0.29	1.00

*Note: C_v, C_c, C_r, and σ_p' to be determined by Geotechnical Engineer.



Comments: Test specimen air-dried for 72 hours then remolded to 110pcf dry unit weight. The load to prevent swell is 3390 psf.

Entered: _____
Viewed: _____

Load to Prevent Swell of Cohesive Soils

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 11/6/2023
By: PW

Boring No.: TP-6
Sample:
Depth: 3.0'
Sample Description: Brown clay
Engineering Classification: Not requested
Sample type: Laboratory compacted

Compaction specifications: Provided by client

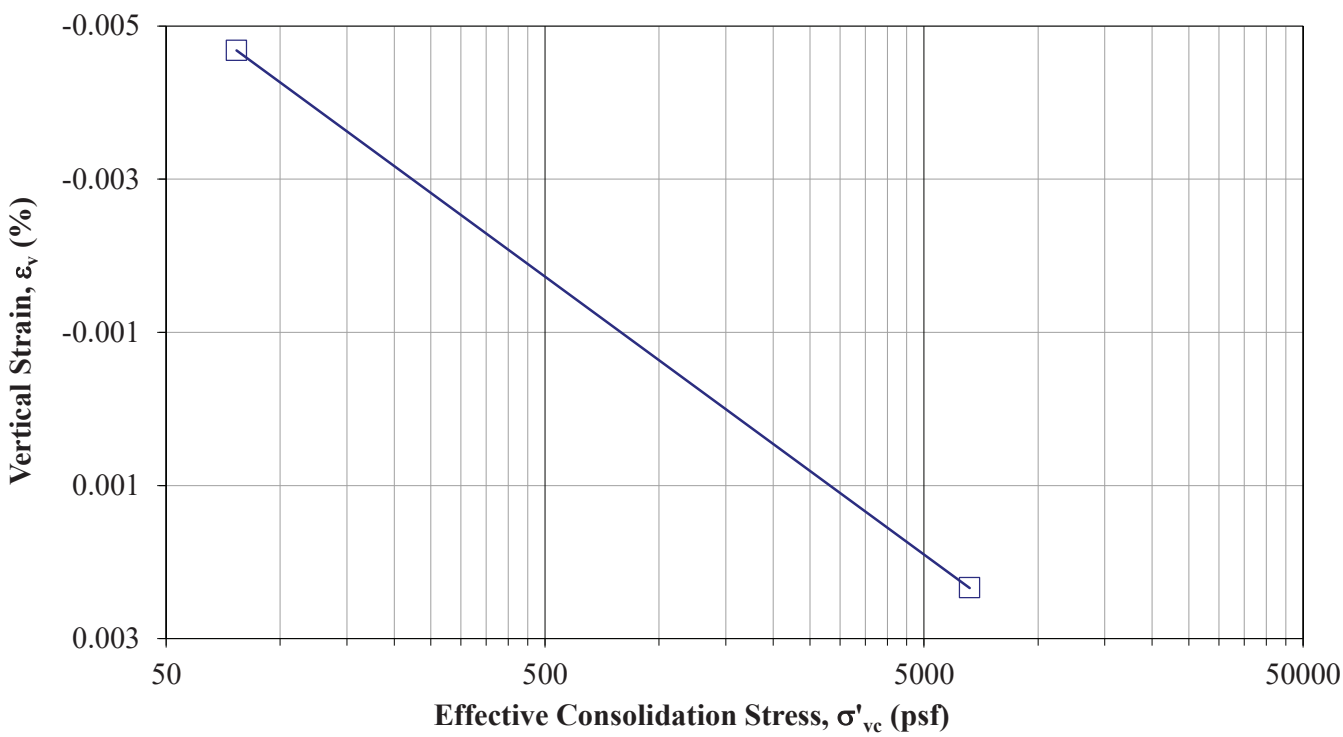
Dry unit weight: 116.6 pcf
at 5.6 (%) w

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.00000	0.00	0.9190	0.520
77	-0.00004	0.00	0.9190	0.520
6600	0.00002	0.00	0.9190	0.520

Inundation stress (psf), timing:	Seating	Beginning
Specific gravity, G_s	2.70	Assumed

	Initial (o)	Final (f)
Sample height, H (in.)	0.919	0.919
Sample diameter, D (in.)	2.414	2.414
Mass rings + wet soil (g)	171.00	189.84
Mass rings/tare (g)	41.75	41.75
Moist unit wt., γ_m (pcf)	117.1	134.1
Wet soil + tare (g)	69.86	365.82
Dry soil + tare (g)	67.40	340.50
Tare (g)	23.41	219.85
Water content, w (%)	5.6	21.0
Dry unit wt., γ_d (pcf)	110.9	110.9
Saturation	0.29	1.00

*Note: C_v, C_c, C_r, and σ_p' to be determined by Geotechnical Engineer.



Comments: Test specimen air-dried for 72 hours then remolded to 95% MDUW. The load to prevent swell is 6600 psf.

Entered: _____
Reviewed: _____

Load to Prevent Swell of Cohesive Soils

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 11/1/2023
By: PW

Boring No.: TP-12
Sample:
Depth: 12.0'
Sample Description: Brown clayey gravel with sand
Engineering Classification: Not requested
Sample type: Laboratory compacted

Compaction specifications: Provided by client

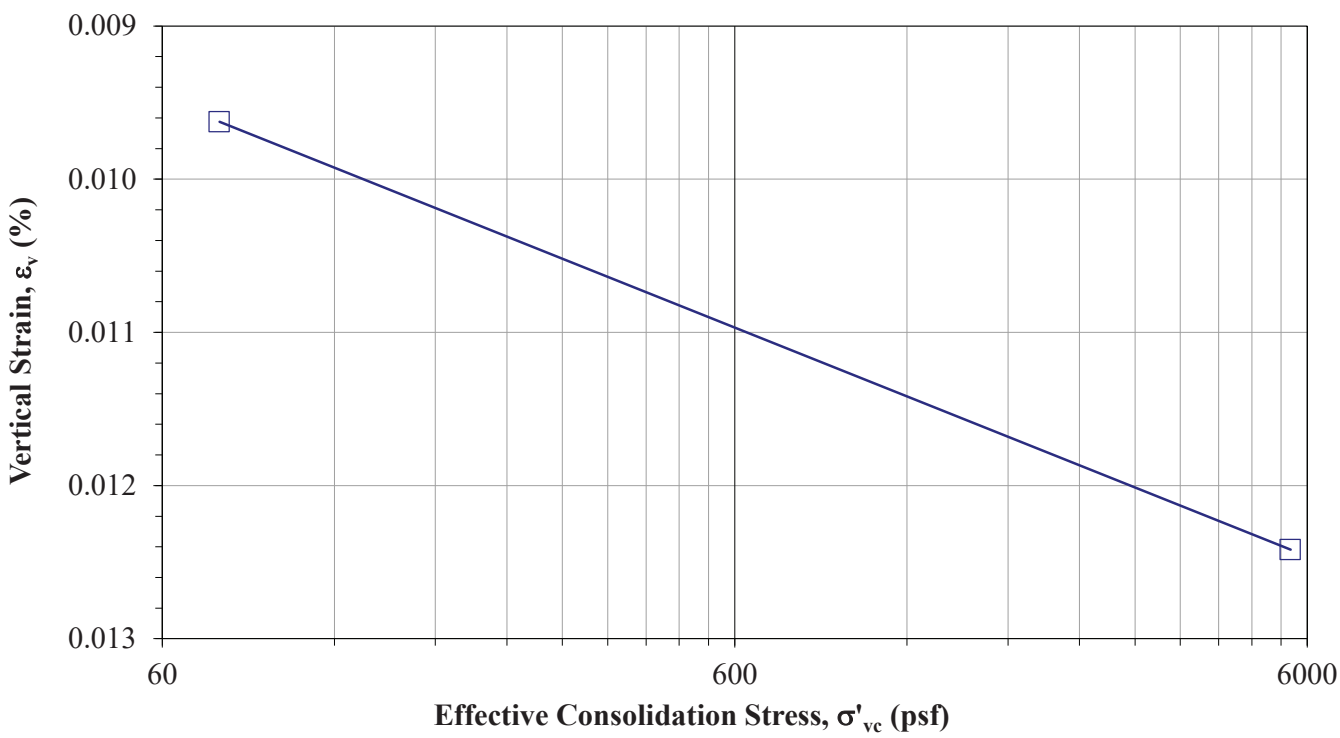
Dry unit weight: 112 pcf
at 6.9 (%) w

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.0000	0.00	0.9220	0.504
76	0.0001	0.01	0.9219	0.504
5610	0.0001	0.01	0.9219	0.504

Inundation stress (psf), timing:	Seating	Beginning
Specific gravity, G_s	2.70	Assumed

	Initial (o)	Final (f)
Sample height, H (in.)	0.922	0.922
Sample diameter, D (in.)	2.416	2.416
Mass rings + wet soil (g)	175.68	191.79
Mass rings/tare (g)	42.77	42.77
Moist unit wt., γ_m (pcf)	119.8	134.3
Wet soil + tare (g)	75.59	363.33
Dry soil + tare (g)	72.22	338.77
Tare (g)	23.30	215.00
Water content, w (%)	6.9	19.8
Dry unit wt., γ_d (pcf)	112.1	112.1
Saturation	0.37	1.00

*Note: C_v, C_c, C_r, and σ_p' to be determined by Geotechnical Engineer.



Comments: Test specimen air-dried for 72 hours then remolded to 112pcf dry unit weight. The load to prevent swell is 5610 psf.

Entered: _____
Viewed: _____

Load to Prevent Swell of Cohesive Soils

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 11/1/2023
By: PW

Boring No.: TP-13
Sample:
Depth: 15.0'
Sample Description: Brown clay
Engineering Classification: Not requested
Sample type: Laboratory compacted

Compaction specifications: Provided by client

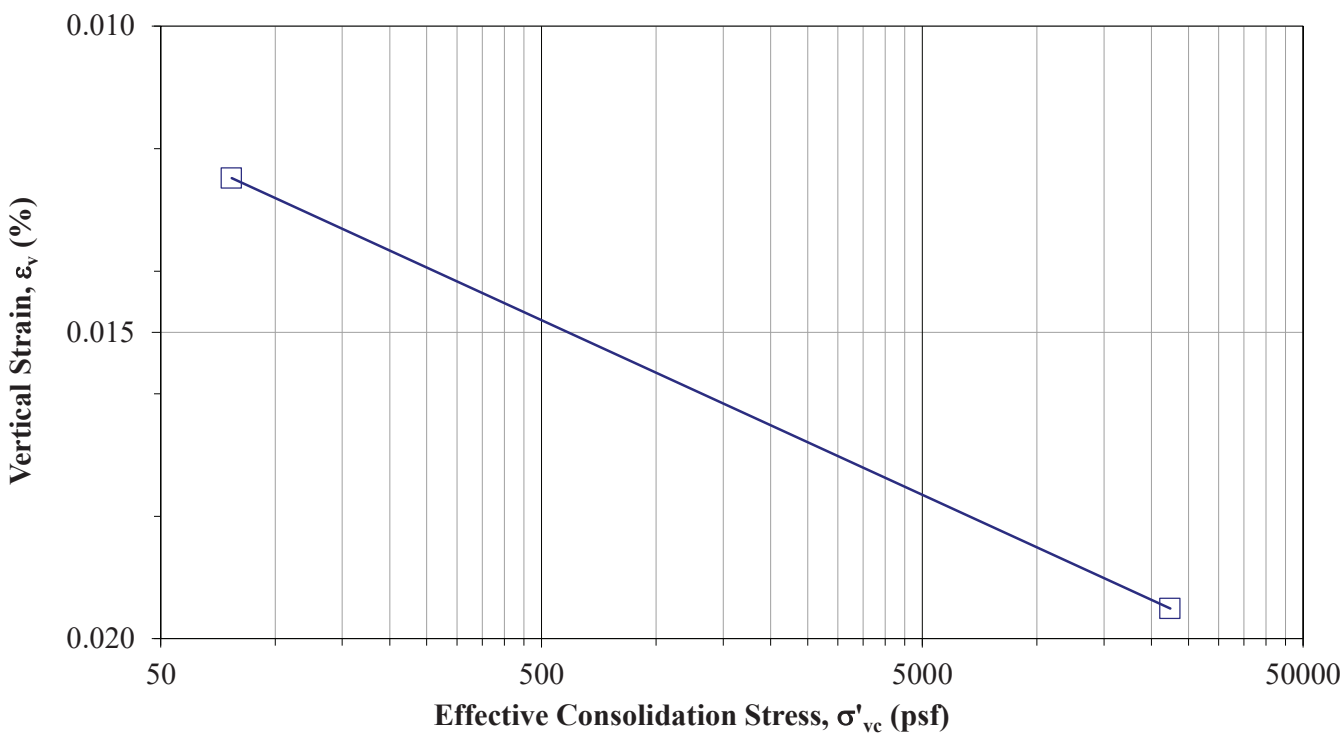
Dry unit weight: 112 pcf
at 9.2 (%) w

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.0000	0.00	0.9180	0.504
77	0.0001	0.01	0.9179	0.504
22400	0.0002	0.02	0.9178	0.504

Inundation stress (psf), timing:	Seating	Beginning
Specific gravity, G_s	2.70	Assumed

	Initial (o)	Final (f)
Sample height, H (in.)	0.918	0.918
Sample diameter, D (in.)	2.413	2.413
Mass rings + wet soil (g)	179.33	194.81
Mass rings/tare (g)	44.50	44.50
Moist unit wt., γ_m (pcf)	122.4	136.4
Wet soil + tare (g)	69.00	275.78
Dry soil + tare (g)	65.17	249.25
Tare (g)	23.38	126.99
Water content, w (%)	9.2	21.7
Dry unit wt., γ_d (pcf)	112.1	112.1
Saturation	0.49	1.00

*Note: C_v, C_c, C_r, and σ_p' to be determined by Geotechnical Engineer.



Comments: Test specimen air-dried for 72 hours then remolded to 112pcf dry unit weight. The load to prevent swell is 22400 psf.

Entered: _____
Viewed: _____

Load to Prevent Swell of Cohesive Soils

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 11/6/2023
By: PW

Boring No.: TP-20
Sample:
Depth: 13.0'
Sample Description: Brown clay
Engineering Classification: Not requested
Sample type: Laboratory compacted

Compaction specifications: Provided by client

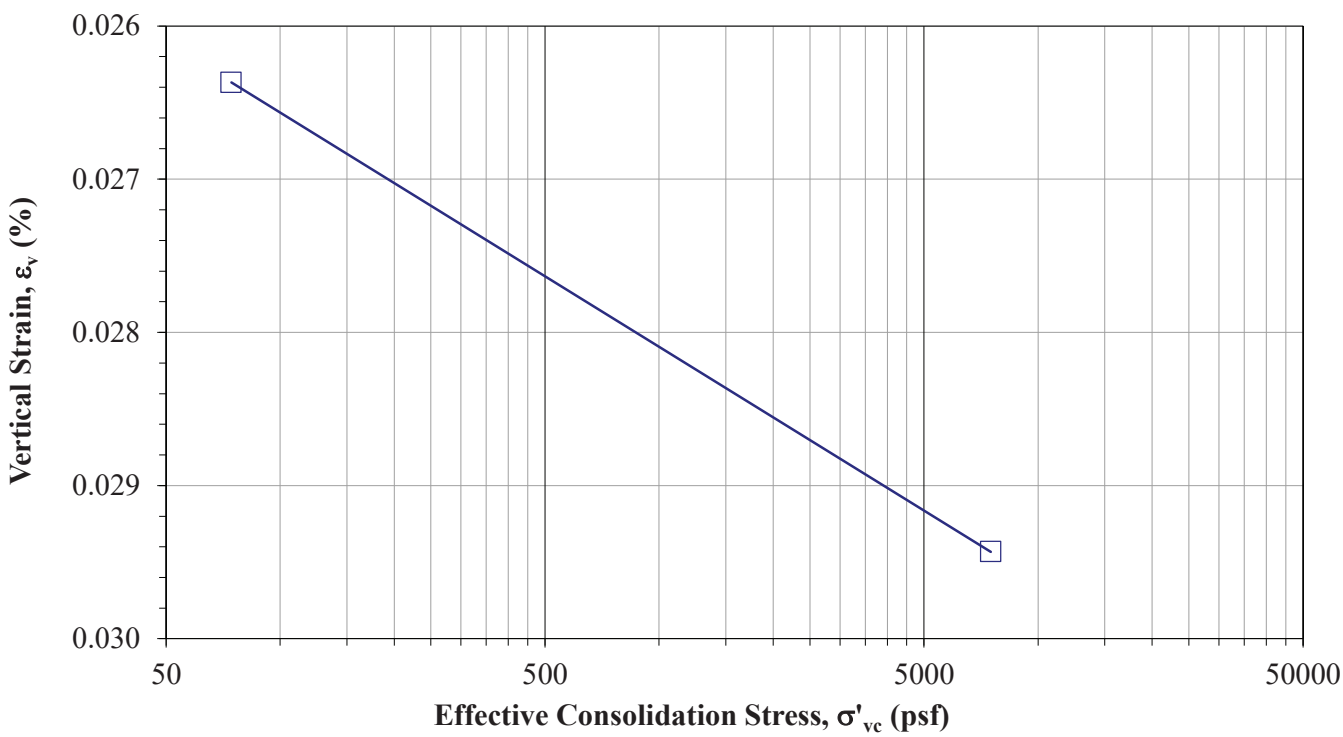
Dry unit weight: 114 pcf
at 9.1 (%) w

Stress (psf)	Dial (in.)	1-D ε_v (%)	H_c (in.)	e
Seating	0.0000	0.00	0.9170	0.555
74	0.0002	0.03	0.9168	0.555
7500	0.0003	0.03	0.9167	0.555

Inundation stress (psf), timing:	Seating	Beginning
Specific gravity, G_s	2.70	Assumed

	Initial (o)	Final (f)
Sample height, H (in.)	0.917	0.917
Sample diameter, D (in.)	2.418	2.418
Mass rings + wet soil (g)	174.94	189.21
Mass rings/tare (g)	44.21	44.21
Moist unit wt., γ_m (pcf)	118.3	131.2
Wet soil + tare (g)	72.02	268.01
Dry soil + tare (g)	67.96	242.90
Tare (g)	23.41	123.47
Water content, w (%)	9.1	21.0
Dry unit wt., γ_d (pcf)	108.4	108.4
Saturation	0.44	1.00

*Note: C_v, C_c, C_r, and σ_p' to be determined by Geotechnical Engineer.



Comments: Test specimen air-dried for 72 hours then remolded to 95% MDUW. The load to prevent swell is 7500 psf.

Entered: _____
Reviewed: _____

Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

(ASTM D2850)

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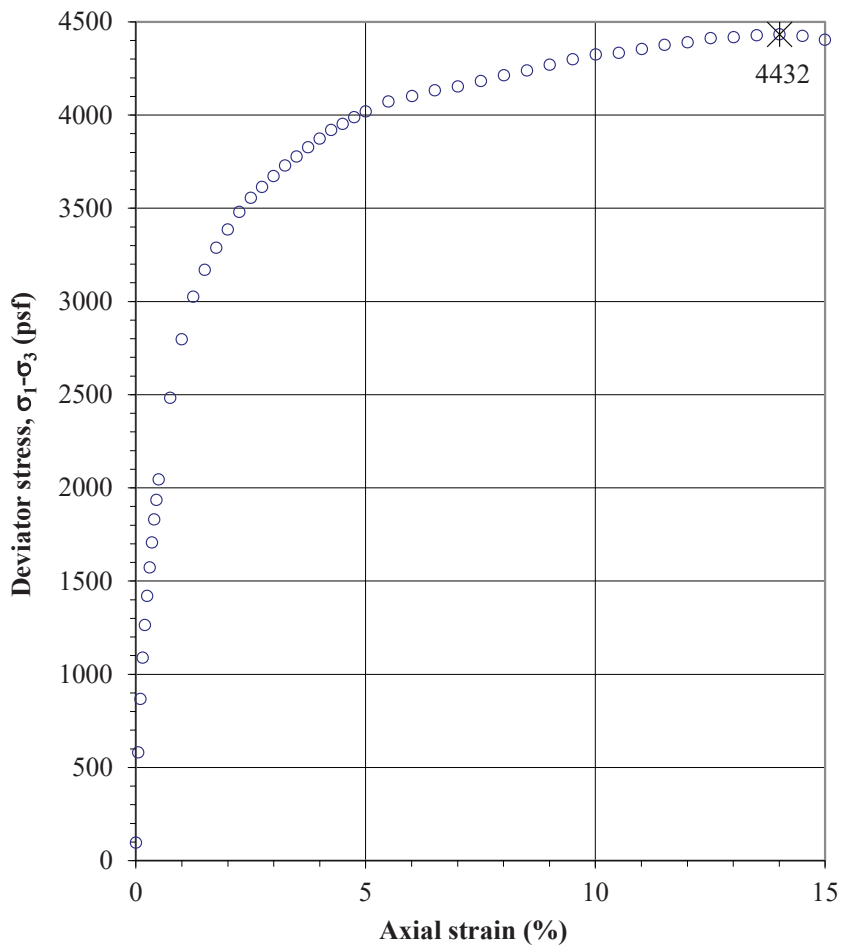
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/18/2023
By: RH

Boring No.: TP-3
Sample:
Depth: 7.0'
Sample Description: Brown clay
Sample type: Undisturbed-trimmed from thin-wall

Specific gravity, Gs	2.70	Assumed
Sample height, H (in.)	5.767	
Sample diameter, D (in.)	2.405	
Sample volume, V (ft^3)	0.0152	
Wt. rings + wet soil (g)	824.14	
Wt. rings/tare (g)	0.00	
Moist soil, Ws (g)	824.14	
Moist unit wt., γ_m (pcf)	119.8	
Dry unit wt., γ_d (pcf)	**92.7**	
Saturation (%)	96.2	
Void ratio, *e*	0.82	

Wet soil + tare (g)	291.75
Dry soil + tare (g)	253.05
Tare (g)	120.85
Water content, w (%)	**29.3**
Confining stress, σ_3 (psf)	776
Shear rate (in/min)	0.0173
Strain at failure, ε_f (%)	14.01
Deviator stress at failure, $(\sigma_1-\sigma_3)_f$ (psf)	4432
Shear stress at failure, $q_f = (\sigma_1-\sigma_3)_f/2$ (psf)	2216

Axial Strain	σ_d $\sigma_1-\sigma_3$	Q 1/2 σ_d
0.00	94.4	47.2
0.05	579.0	289.5
0.10	865.0	432.5
0.15	1086.7	543.3
0.20	1262.3	631.2
0.25	1417.7	708.9
0.30	1571.0	785.5
0.35	1704.5	852.2
0.40	1828.1	914.0
0.45	1933.2	966.6
0.50	2043.6	1021.8
0.75	2481.8	1240.9
1.00	2795.0	1397.5
1.25	3023.4	1511.7
1.50	3168.0	1584.0
1.75	3287.0	1643.5
2.00	3384.7	1692.4
2.25	3479.2	1739.6
2.50	3554.0	1777.0
2.75	3612.7	1806.4
3.00	3670.8	1835.4
3.25	3727.7	1863.9
3.50	3775.6	1887.8
3.75	3825.6	1912.8
4.00	3870.9	1935.5
4.25	3917.7	1958.9
4.50	3951.1	1975.6
4.75	3986.2	1993.1
5.00	4017.4	2008.7
5.50	4071.0	2035.5
6.01	4100.7	2050.3
6.51	4131.7	2065.9
7.01	4151.5	2075.8
7.51	4180.4	2090.2
8.01	4211.1	2105.6
8.51	4237.8	2118.9
9.01	4268.7	2134.4
9.51	4297.3	2148.7
10.01	4323.0	2161.5
10.51	4332.4	2166.2
11.01	4352.2	2176.1
11.51	4373.9	2187.0
12.01	4388.4	2194.2
12.51	4410.6	2205.3
13.01	4415.3	2207.6
13.51	4426.6	2213.3
14.01	4431.9	2216.0
14.51	4422.0	2211.0
15.00	4401.7	2200.8



Entered by:_____

Reviewed:_____

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Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

(ASTM D2850)

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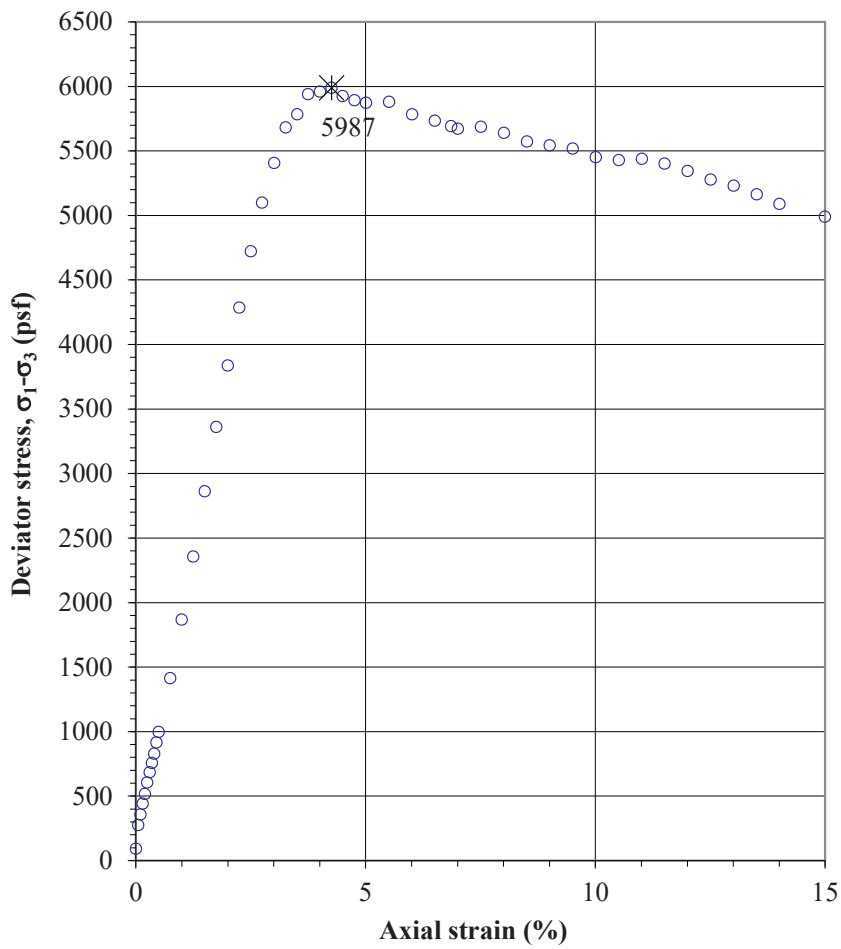
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/19/2023
By: CJ

Boring No.: TP-9
Sample:
Depth: 7.0'
Sample Description: Brown silt
Sample type: Undisturbed-trimmed from thin-wall

Specific gravity, Gs	2.70	Assumed
Sample height, H (in.)	4.867	
Sample diameter, D (in.)	2.404	
Sample volume, V (ft^3)	0.0128	
Wt. rings + wet soil (g)	870.41	
Wt. rings/tare (g)	239.00	
Moist soil, Ws (g)	631.41	
Moist unit wt., γ_m (pcf)	108.9	
Dry unit wt., γ_d (pcf)	**85.3**	
Saturation (%)	76.2	
Void ratio, *e*	0.98	

Wet soil + tare (g)	482.10
Dry soil + tare (g)	423.49
Tare (g)	211.26
Water content, w (%)	**27.6**
Confining stress, σ_3 (psf)	799
Shear rate (in/min)	0.0146
Strain at failure, ε_f (%)	4.26
Deviator stress at failure, $(\sigma_1-\sigma_3)_f$ (psf)	5987
Shear stress at failure, $q_f = (\sigma_1-\sigma_3)_f/2$ (psf)	2993

Axial Strain	σ_d $\sigma_1-\sigma_3$	Q 1/2 σ_d
0.00	90.2	45.1
0.05	273.3	136.7
0.10	355.7	177.9
0.15	438.4	219.2
0.20	514.0	257.0
0.25	604.2	302.1
0.30	682.8	341.4
0.35	755.1	377.5
0.40	827.2	413.6
0.45	912.6	456.3
0.50	995.2	497.6
0.75	1410.3	705.2
1.00	1865.7	932.8
1.25	2354.0	1177.0
1.50	2859.4	1429.7
1.75	3357.7	1678.9
2.00	3834.3	1917.1
2.25	4282.2	2141.1
2.50	4720.0	2360.0
2.75	5096.8	2548.4
3.01	5403.5	2701.7
3.26	5678.5	2839.2
3.51	5781.2	2890.6
3.75	5937.6	2968.8
4.01	5957.6	2978.8
4.26	5986.7	2993.4
4.50	5923.4	2961.7
4.76	5889.6	2944.8
5.01	5869.4	2934.7
5.51	5878.7	2939.3
6.01	5780.7	2890.4
6.51	5731.9	2865.9
6.86	5690.0	2845.0
7.01	5669.1	2834.5
7.51	5684.5	2842.2
8.01	5636.0	2818.0
8.51	5570.2	2785.1
9.01	5539.7	2769.9
9.51	5514.7	2757.3
10.01	5448.6	2724.3
10.51	5425.3	2712.6
11.01	5437.4	2718.7
11.51	5400.0	2700.0
12.01	5343.3	2671.6
12.51	5275.4	2637.7
13.01	5227.7	2613.8
13.51	5159.8	2579.9
14.01	5086.0	2543.0
15.00	4988.2	2494.1



Entered by:_____

Reviewed:_____

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Unconsolidated-Undrained Triaxial Compression Test on Cohesive Soils

(ASTM D2850)

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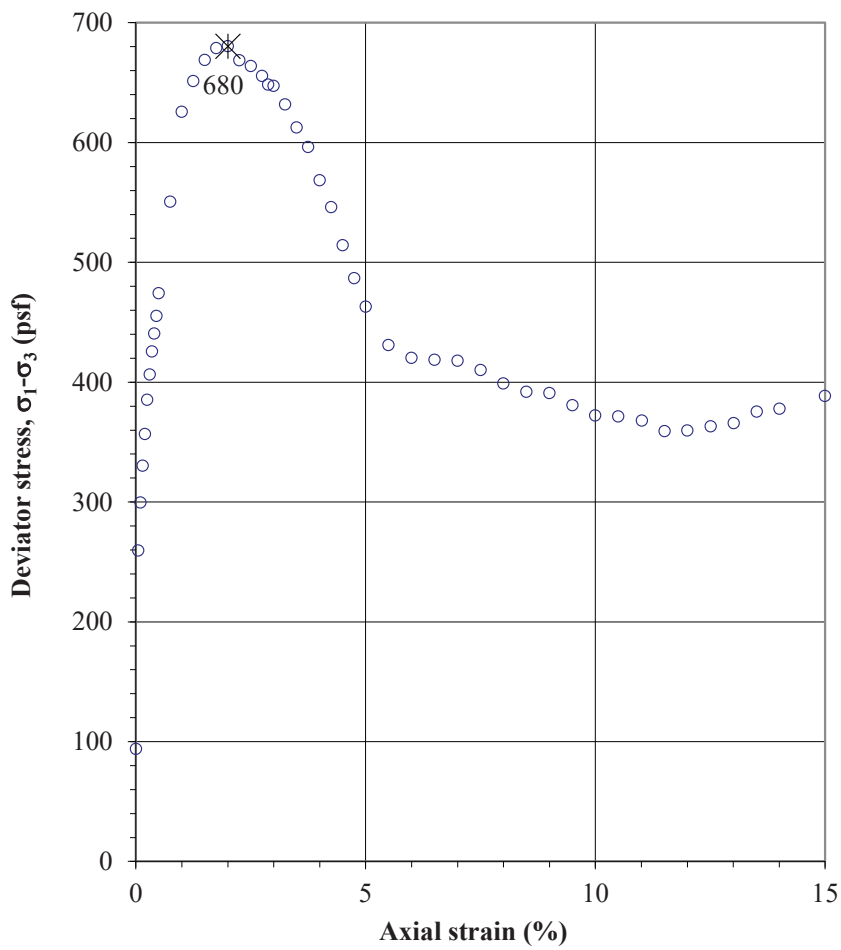
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 10/25/2023
By: CJ

Boring No.: TP-18
Sample:
Depth: 3.0'
Sample Description: Brown sandy clay
Sample type: Undisturbed-trimmed from thin-wall

Specific gravity, Gs	2.70	Assumed
Sample height, H (in.)	5.616	
Sample diameter, D (in.)	2.408	
Sample volume, V (ft^3)	0.0148	
Wt. rings + wet soil (g)	1004.64	
Wt. rings/tare (g)	240.75	
Moist soil, Ws (g)	763.89	
Moist unit wt., γ_m (pcf)	113.8	
Dry unit wt., γ_d (pcf)	**91.0**	
Saturation (%)	79.0	
Void ratio, *e*	0.86	

Wet soil + tare (g)	413.47
Dry soil + tare (g)	356.20
Tare (g)	127.55
Water content, w (%)	**25.0**
Confining stress, σ_3 (psf)	443
Shear rate (in/min)	0.0168
Strain at failure, ε_f (%)	2.00
Deviator stress at failure, $(\sigma_1-\sigma_3)_f$ (psf)	680
Shear stress at failure, $q_f = (\sigma_1-\sigma_3)_f/2$ (psf)	340

Axial Strain	σ_d $\sigma_1-\sigma_3$	Q 1/2 σ_d
0.00	94.0	47.0
0.05	259.4	129.7
0.10	299.4	149.7
0.15	330.1	165.1
0.20	356.7	178.4
0.25	385.2	192.6
0.30	406.4	203.2
0.35	425.6	212.8
0.40	440.6	220.3
0.45	455.3	227.6
0.50	474.2	237.1
0.75	550.6	275.3
1.00	625.6	312.8
1.25	651.4	325.7
1.50	669.0	334.5
1.75	678.8	339.4
2.00	680.4	340.2
2.25	668.6	334.3
2.50	663.7	331.8
2.75	655.6	327.8
2.88	648.3	324.2
3.00	647.3	323.7
3.25	631.9	315.9
3.50	612.5	306.3
3.75	596.2	298.1
4.00	568.5	284.2
4.25	546.1	273.0
4.50	514.3	257.1
4.75	486.7	243.4
5.00	463.0	231.5
5.50	431.0	215.5
6.00	420.4	210.2
6.50	418.7	209.3
7.00	418.0	209.0
7.50	410.0	205.0
8.00	398.8	199.4
8.50	392.0	196.0
9.00	390.8	195.4
9.50	380.7	190.4
10.00	372.2	186.1
10.50	371.3	185.6
11.01	368.0	184.0
11.51	359.0	179.5
12.00	359.6	179.8
12.51	363.2	181.6
13.01	365.8	182.9
13.51	375.3	187.7
14.01	377.9	188.9
15.00	388.6	194.3



Entered by:_____

Reviewed:_____

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Direct Shear Test for Soils Under Drained Conditions

(ASTM D3080)

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Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 11/7/2023
By: PW

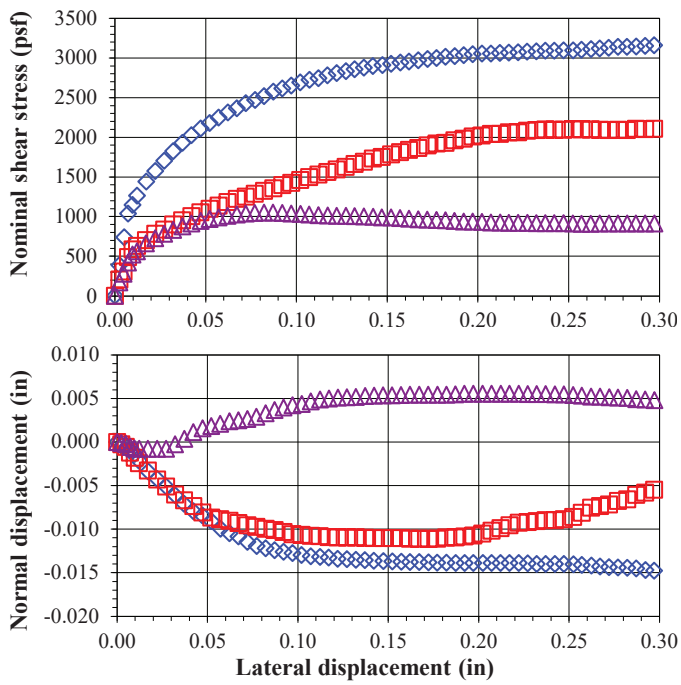
Boring No.: TP-8
Sample:
Depth: 5.0'
Sample Description: Brown clay
Sample type: Undisturbed-trimmed from thin-wall

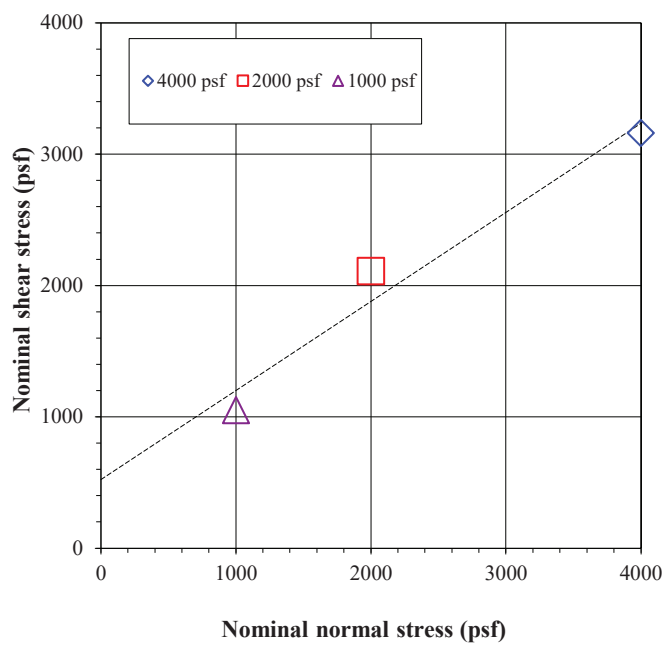
Test type: Inundated
Lateral displacement (in.): 0.3
Shear rate (in./min): 0.0086
Specific gravity, Gs: 2.70 Assumed

	Specimen 1		Specimen 2		Specimen 3	
Nominal normal stress (psf)	4000		2000		1000	
Peak shear stress (psf)	3161		2108		1051	
Lateral displacement at peak (in)	0.297		0.297		0.087	
Load Duration (min)	1245		4124		1258	
	Initial	Pre-shear	Initial	Pre-shear	Initial	Pre-shear
Specimen height (in)	0.995	0.930	0.996	0.958	1.000	0.986
Specimen diameter (in)	2.413	2.413	2.419	2.419	2.417	2.417
Wt. rings + wet soil (g)	177.66	184.10	194.41	197.40	187.12	195.53
Wt. rings (g)	41.13	41.13	45.14	45.14	45.23	45.23
Wet soil + tare (g)	364.80		364.80		364.80	
Dry soil + tare (g)	343.21		343.21		343.21	
Tare (g)	218.48		218.48		218.48	
Water content (%)	17.3	22.8	17.3	19.7	17.3	24.3
Dry unit weight (pcf)	97.4	104.2	105.9	110.1	100.4	101.8
Void ratio, e, for assumed Gs	0.73	0.62	0.59	0.53	0.68	0.66
Saturation (%)*	64.0	100.0	79.0	100.0	68.9	100.0

		Average of 3 specimens	Initial	Pre-shear
ϕ' (deg)	34	Water content (%)	17.3	22.3
c' (psf)	524	Dry unit weight (pcf)	101.3	105.4

*Pre-shear saturation set to 100% for phase calculations





Comments:
Test specimens 1 and 3 swelled upon inundation and at the 125 psf load step.

Entered by:_____
Reviewed:_____

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Direct Shear Test for Soils Under Drained Conditions

(ASTM D3080)

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Project: Shoreline - Phase 4 **Boring No.:** TP-8

No: 00733-026 **Sample:**

Location: Hideout **Depth:** 5.0'

Nominal normal stress = 4000 psf			Nominal normal stress = 2000 psf			Nominal normal stress = 1000 psf		
Lateral Displacement (in.)	Nominal Shear Stress (psf)	Normal Displacement (in.)	Lateral Displacement (in.)	Nominal Shear Stress (psf)	Normal Displacement (in.)	Lateral Displacement (in.)	Nominal Shear Stress (psf)	Normal Displacement (in.)
0.000	0	0.000	0.000	0	0.000	0.000	0	0.000
0.003	390	0.000	0.002	205	0.000	0.002	171	0.000
0.005	740	-0.001	0.005	308	-0.001	0.005	281	0.000
0.007	1039	-0.001	0.007	488	-0.001	0.007	420	-0.001
0.010	1148	-0.001	0.010	585	-0.002	0.010	521	-0.001
0.012	1263	-0.002	0.012	630	-0.002	0.012	560	-0.001
0.017	1443	-0.003	0.017	704	-0.003	0.017	663	-0.001
0.022	1576	-0.004	0.022	782	-0.004	0.022	729	-0.001
0.027	1705	-0.005	0.027	836	-0.005	0.027	786	-0.001
0.032	1827	-0.006	0.032	902	-0.006	0.032	833	0.000
0.037	1929	-0.007	0.037	954	-0.007	0.037	878	0.000
0.042	2027	-0.008	0.042	1006	-0.007	0.042	915	0.001
0.047	2111	-0.008	0.047	1055	-0.008	0.047	946	0.002
0.052	2180	-0.009	0.052	1100	-0.009	0.052	971	0.002
0.057	2249	-0.010	0.057	1141	-0.009	0.057	992	0.002
0.062	2315	-0.010	0.062	1182	-0.009	0.062	1009	0.002
0.067	2368	-0.011	0.067	1223	-0.009	0.067	1025	0.002
0.072	2431	-0.011	0.072	1251	-0.010	0.072	1039	0.003
0.077	2472	-0.012	0.077	1290	-0.010	0.077	1045	0.003
0.082	2521	-0.012	0.082	1327	-0.010	0.082	1050	0.003
0.087	2574	-0.012	0.087	1359	-0.010	0.087	1051	0.004
0.092	2615	-0.013	0.092	1398	-0.010	0.092	1045	0.004
0.097	2652	-0.013	0.097	1425	-0.011	0.097	1039	0.004
0.102	2692	-0.013	0.102	1463	-0.011	0.102	1033	0.004
0.107	2726	-0.013	0.107	1499	-0.011	0.107	1025	0.005
0.112	2746	-0.013	0.112	1530	-0.011	0.112	1019	0.005
0.117	2782	-0.013	0.117	1562	-0.011	0.117	1014	0.005
0.122	2810	-0.013	0.122	1594	-0.011	0.122	1010	0.005
0.127	2835	-0.013	0.127	1628	-0.011	0.127	1009	0.005
0.132	2857	-0.014	0.132	1665	-0.011	0.132	1006	0.005
0.137	2878	-0.014	0.137	1693	-0.011	0.137	1002	0.005
0.142	2898	-0.014	0.142	1731	-0.011	0.142	997	0.005
0.147	2911	-0.014	0.147	1753	-0.011	0.147	991	0.005
0.152	2928	-0.014	0.152	1785	-0.011	0.152	989	0.005
0.157	2942	-0.014	0.157	1814	-0.011	0.157	981	0.005
0.162	2955	-0.014	0.162	1840	-0.011	0.162	974	0.005
0.167	2973	-0.014	0.167	1865	-0.011	0.167	968	0.005
0.172	2988	-0.014	0.172	1898	-0.011	0.172	962	0.005
0.177	3001	-0.014	0.177	1922	-0.011	0.177	958	0.005
0.182	3014	-0.014	0.182	1931	-0.011	0.182	954	0.005
0.187	3025	-0.014	0.187	1962	-0.011	0.187	947	0.005
0.192	3037	-0.014	0.192	1985	-0.011	0.192	939	0.006
0.197	3047	-0.014	0.197	2013	-0.011	0.197	936	0.006
0.202	3055	-0.014	0.202	2024	-0.011	0.202	932	0.006
0.207	3055	-0.014	0.207	2044	-0.010	0.207	926	0.006
0.212	3066	-0.014	0.212	2045	-0.010	0.212	925	0.006
0.217	3069	-0.014	0.217	2064	-0.010	0.217	922	0.006
0.222	3074	-0.014	0.222	2062	-0.009	0.222	923	0.006
0.227	3081	-0.014	0.227	2083	-0.009	0.227	921	0.005
0.232	3084	-0.014	0.232	2094	-0.009	0.232	919	0.005
0.237	3091	-0.014	0.237	2099	-0.009	0.237	917	0.005
0.242	3093	-0.014	0.242	2098	-0.009	0.242	919	0.005
0.247	3095	-0.014	0.247	2098	-0.009	0.247	916	0.005
0.253	3095	-0.014	0.252	2104	-0.009	0.252	912	0.005
0.257	3105	-0.014	0.257	2101	-0.008	0.257	911	0.005
0.262	3114	-0.014	0.262	2099	-0.008	0.262	911	0.005
0.267	3120	-0.014	0.267	2095	-0.007	0.267	911	0.005
0.272	3130	-0.014	0.272	2091	-0.007	0.272	911	0.005
0.277	3139	-0.014	0.277	2098	-0.007	0.277	915	0.005
0.282	3141	-0.014	0.282	2093	-0.007	0.282	914	0.005
0.287	3146	-0.015	0.287	2107	-0.006	0.287	913	0.005
0.292	3153	-0.015	0.292	2106	-0.006	0.292	912	0.005
0.297	3161	-0.015	0.297	2108	-0.005	0.297	915	0.005

Direct Shear Test for Soils Under Drained Conditions

(ASTM D3080)

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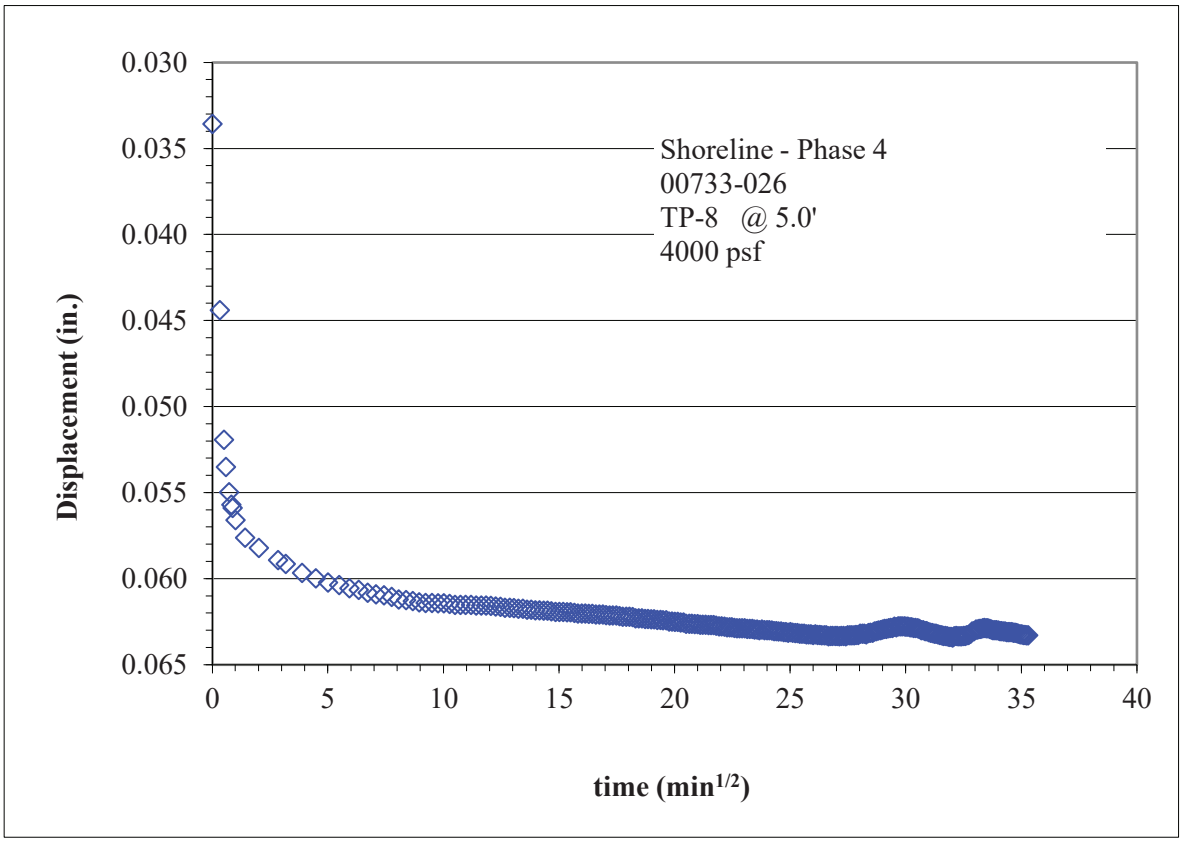
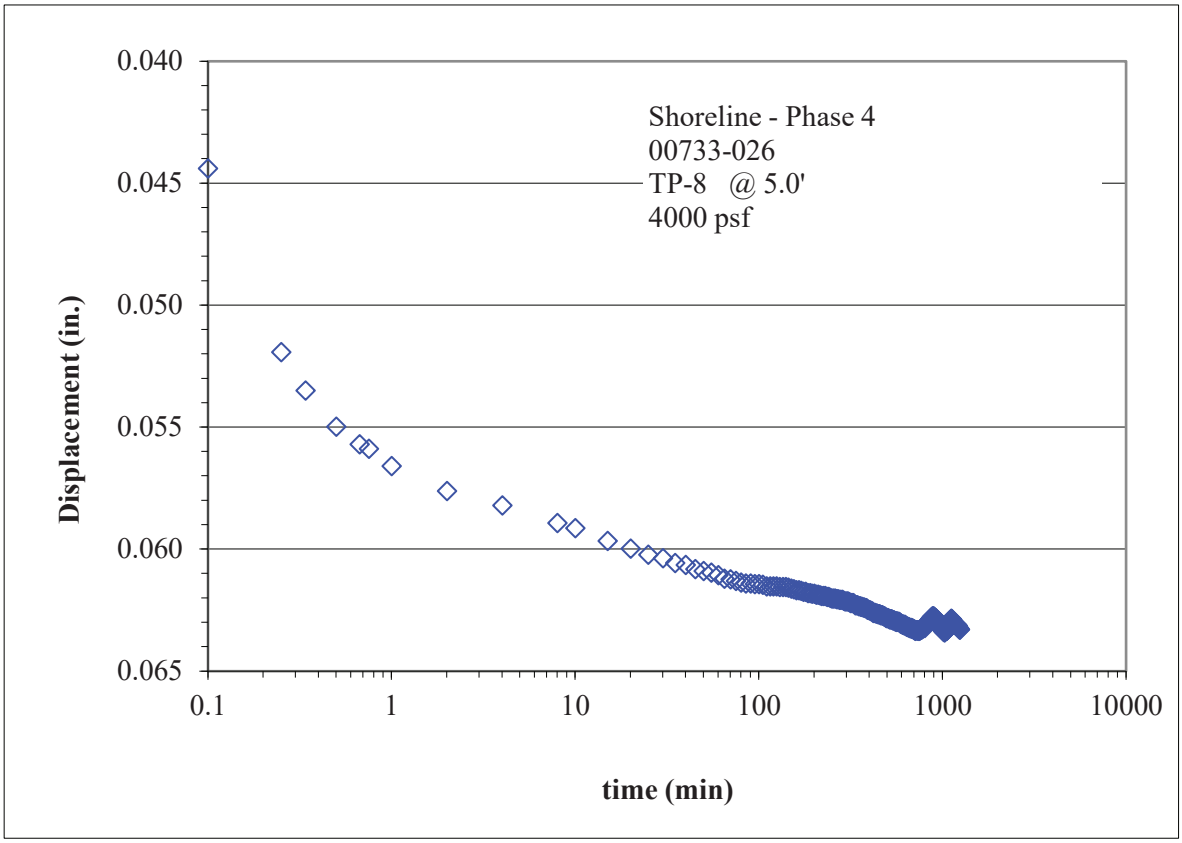
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout

Boring No.: TP-8
Sample:
Depth: 5.0'





Direct Shear Test for Soils Under Drained Conditions

(ASTM D3080)

© IGES 2009, 2023

Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout
Date: 11/8/2023
By: PW

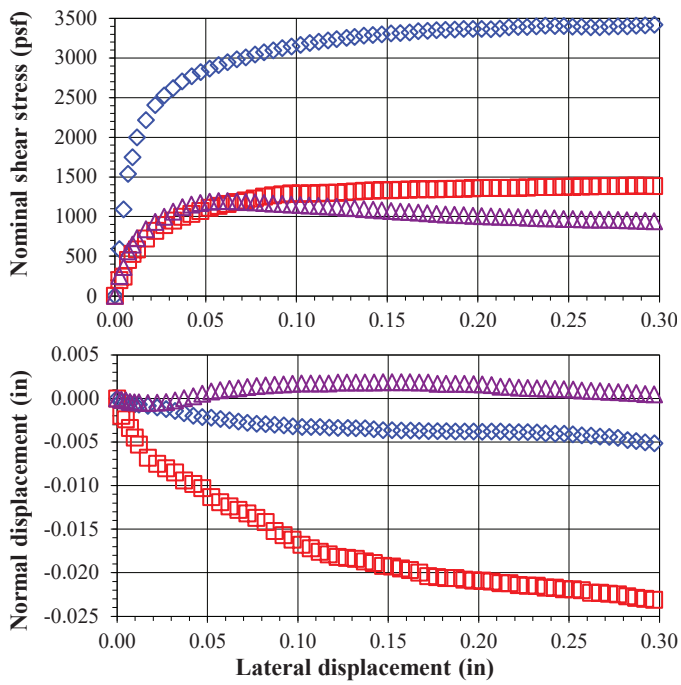
Boring No.: TP-15
Sample:
Depth: 4.0'
Sample Description: Brown clay
Sample type: Undisturbed-trimmed from thin-wall

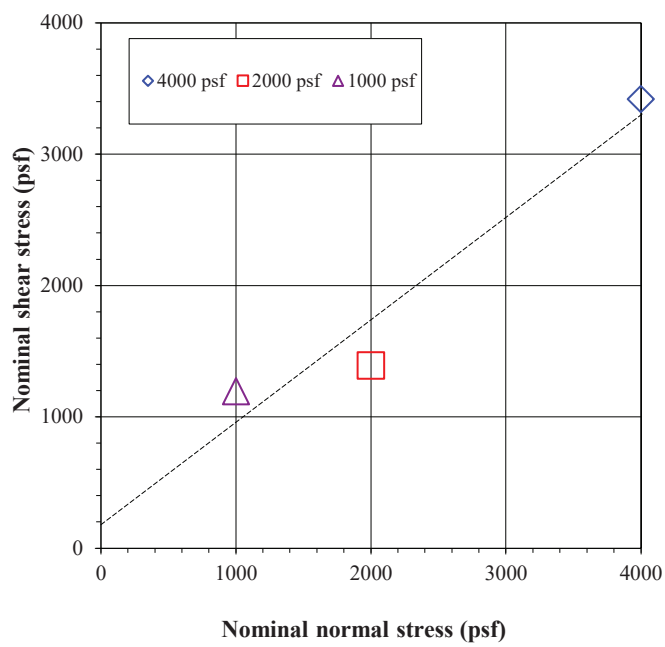
Test type: Inundated
Lateral displacement (in.): 0.3
Shear rate (in./min): 0.0022
Specific gravity, Gs: 2.70 Assumed

	Specimen 1		Specimen 2		Specimen 3	
Nominal normal stress (psf)	4000		2000		1000	
Peak shear stress (psf)	3419		1389		1195	
Lateral displacement at peak (in)	0.297		0.287		0.057	
Load Duration (min)	1277		211		1309	
	Initial	Pre-shear	Initial	Pre-shear	Initial	Pre-shear
Specimen height (in)	0.995	0.943	0.998	0.870	1.003	0.989
Specimen diameter (in)	2.415	2.415	2.413	2.413	2.408	2.408
Wt. rings + wet soil (g)	186.46	190.68	162.91	172.63	186.84	193.96
Wt. rings (g)	44.19	44.19	44.37	44.37	44.29	44.29
Wet soil + tare (g)	162.41		162.41		162.41	
Dry soil + tare (g)	157.09		157.09		157.09	
Tare (g)	128.09		128.09		128.09	
Water content (%)	18.3	21.9	18.3	28.0	18.3	24.3
Dry unit weight (pcf)	100.5	106.0	83.6	95.9	100.5	101.8
Void ratio, e, for assumed Gs	0.68	0.59	1.02	0.76	0.68	0.65
Saturation (%)*	73.1	100.0	48.8	100.0	73.1	100.0

		Average of 3 specimens	Initial	Pre-shear
ϕ' (deg)	38	Water content (%)	18.3	24.7
c' (psf)	180	Dry unit weight (pcf)	94.8	101.2

*Pre-shear saturation set to 100% for phase calculations





Comments:
Test specimens 1 and 3 swelled upon inundation and at the 125 psf load step.

Entered by:_____
Reviewed:_____

Z:\PROJECTS\00733_GCD\026_Shoreline_Phase_4\[DS_GCv4.xlsm]2

Direct Shear Test for Soils Under Drained Conditions

(ASTM D3080)

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Project: Shoreline - Phase 4 **Boring No.:** TP-15

No: 00733-026 **Sample:**

Location: Hideout **Depth:** 4.0'

Nominal normal stress = 4000 psf			Nominal normal stress = 2000 psf			Nominal normal stress = 1000 psf		
Lateral Displacement (in.)	Nominal Shear Stress (psf)	Normal Displacement (in.)	Lateral Displacement (in.)	Nominal Shear Stress (psf)	Normal Displacement (in.)	Lateral Displacement (in.)	Nominal Shear Stress (psf)	Normal Displacement (in.)
0.000	0	0.000	0.000	0	0.000	0.000	0	0.000
0.002	591	0.000	0.002	199	-0.002	0.002	252	0.000
0.005	1090	0.000	0.005	242	-0.002	0.005	363	0.000
0.007	1539	-0.001	0.007	454	-0.003	0.007	560	0.000
0.010	1750	-0.001	0.010	531	-0.005	0.010	648	0.000
0.012	1999	-0.001	0.012	587	-0.005	0.012	727	0.000
0.017	2218	-0.001	0.017	723	-0.007	0.017	840	-0.001
0.022	2406	-0.001	0.022	819	-0.008	0.022	933	0.000
0.027	2527	-0.001	0.027	892	-0.008	0.027	998	0.000
0.032	2622	-0.001	0.032	948	-0.009	0.032	1064	0.000
0.037	2705	-0.002	0.037	998	-0.009	0.037	1119	0.000
0.042	2771	-0.002	0.042	1035	-0.010	0.042	1152	0.000
0.047	2821	-0.002	0.047	1069	-0.010	0.047	1172	0.001
0.052	2866	-0.002	0.052	1112	-0.011	0.052	1189	0.001
0.057	2910	-0.002	0.057	1136	-0.012	0.057	1195	0.001
0.062	2948	-0.003	0.062	1160	-0.012	0.062	1194	0.001
0.067	2984	-0.003	0.067	1185	-0.013	0.067	1192	0.001
0.072	3009	-0.003	0.072	1205	-0.013	0.072	1185	0.001
0.077	3043	-0.003	0.077	1227	-0.014	0.077	1178	0.001
0.082	3071	-0.003	0.082	1253	-0.014	0.082	1170	0.001
0.087	3097	-0.003	0.087	1267	-0.015	0.087	1163	0.002
0.092	3123	-0.003	0.092	1280	-0.016	0.092	1160	0.002
0.097	3146	-0.003	0.097	1291	-0.016	0.097	1153	0.002
0.102	3167	-0.003	0.102	1290	-0.017	0.102	1147	0.002
0.107	3188	-0.003	0.107	1294	-0.017	0.107	1141	0.002
0.112	3206	-0.003	0.112	1293	-0.018	0.112	1135	0.002
0.117	3223	-0.003	0.117	1299	-0.018	0.117	1129	0.002
0.122	3239	-0.003	0.122	1302	-0.018	0.122	1123	0.002
0.128	3254	-0.003	0.127	1309	-0.018	0.127	1113	0.002
0.132	3268	-0.003	0.132	1317	-0.018	0.132	1108	0.002
0.137	3281	-0.003	0.137	1324	-0.019	0.137	1096	0.002
0.142	3292	-0.004	0.142	1328	-0.019	0.142	1086	0.002
0.147	3300	-0.004	0.147	1333	-0.019	0.147	1077	0.002
0.152	3309	-0.004	0.152	1334	-0.019	0.152	1071	0.002
0.157	3315	-0.004	0.157	1336	-0.020	0.157	1063	0.002
0.162	3324	-0.004	0.162	1340	-0.020	0.162	1058	0.002
0.167	3337	-0.004	0.167	1343	-0.020	0.167	1051	0.002
0.172	3342	-0.004	0.172	1343	-0.020	0.172	1043	0.002
0.177	3349	-0.004	0.177	1346	-0.021	0.177	1034	0.002
0.182	3355	-0.004	0.182	1347	-0.021	0.182	1027	0.002
0.187	3358	-0.004	0.187	1350	-0.021	0.187	1024	0.002
0.192	3365	-0.004	0.192	1352	-0.021	0.192	1020	0.002
0.197	3367	-0.004	0.197	1358	-0.021	0.197	1011	0.002
0.202	3368	-0.004	0.202	1361	-0.021	0.202	1006	0.002
0.207	3363	-0.004	0.207	1362	-0.021	0.207	1004	0.002
0.212	3370	-0.004	0.212	1363	-0.021	0.212	998	0.001
0.217	3386	-0.004	0.217	1362	-0.021	0.217	994	0.001
0.222	3390	-0.004	0.222	1366	-0.021	0.222	992	0.001
0.227	3391	-0.004	0.227	1366	-0.022	0.227	987	0.001
0.232	3398	-0.004	0.232	1372	-0.022	0.232	983	0.001
0.237	3409	-0.004	0.237	1372	-0.022	0.237	976	0.001
0.242	3402	-0.004	0.242	1375	-0.022	0.242	976	0.001
0.247	3402	-0.004	0.247	1376	-0.022	0.247	971	0.001
0.252	3396	-0.004	0.252	1379	-0.022	0.252	970	0.001
0.257	3395	-0.004	0.257	1382	-0.022	0.257	967	0.001
0.262	3386	-0.004	0.262	1382	-0.022	0.262	963	0.001
0.267	3386	-0.004	0.267	1385	-0.022	0.267	962	0.001
0.272	3395	-0.004	0.272	1387	-0.022	0.272	961	0.001
0.277	3398	-0.005	0.277	1387	-0.023	0.277	956	0.001
0.282	3400	-0.005	0.282	1388	-0.023	0.282	954	0.001
0.287	3409	-0.005	0.287	1389	-0.023	0.287	949	0.001
0.292	3411	-0.005	0.292	1388	-0.023	0.292	944	0.000
0.297	3419	-0.005	0.297	1387	-0.023	0.297	941	0.000

Direct Shear Test for Soils Under Drained Conditions

(ASTM D3080)

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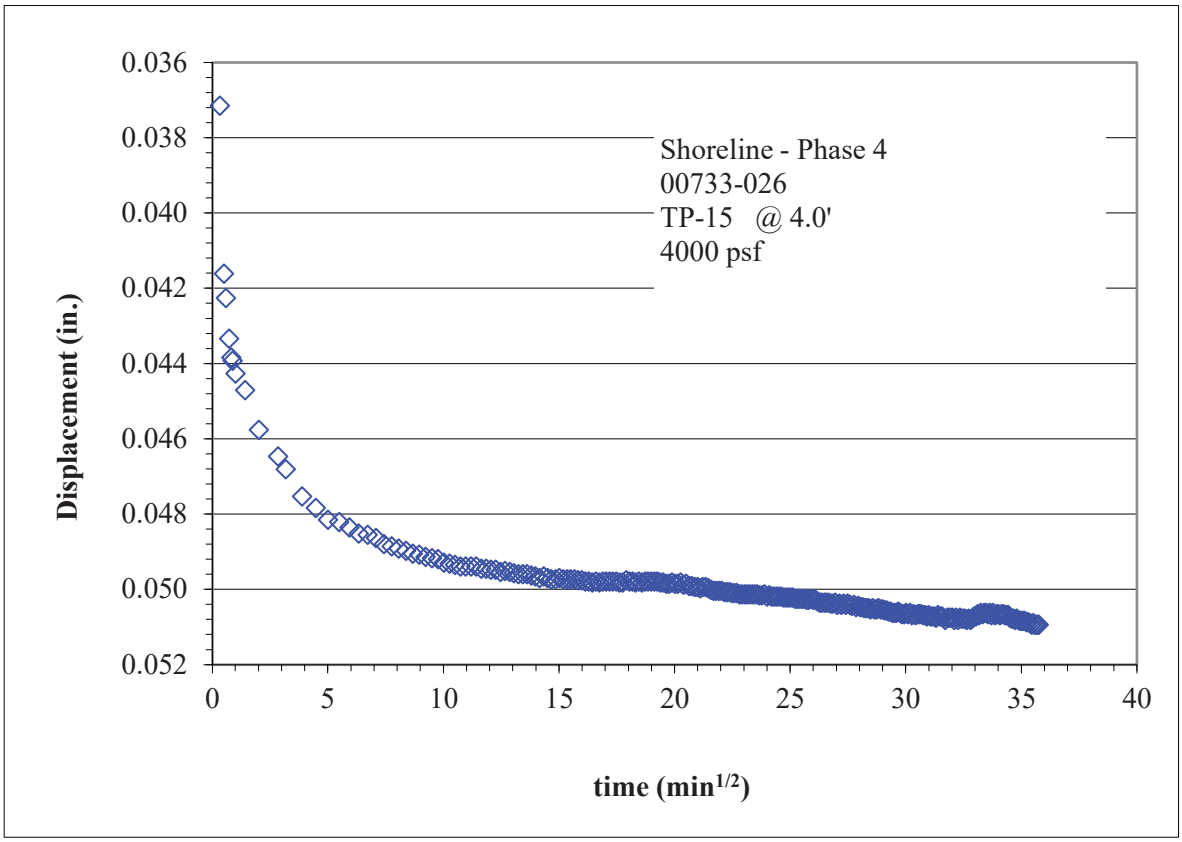
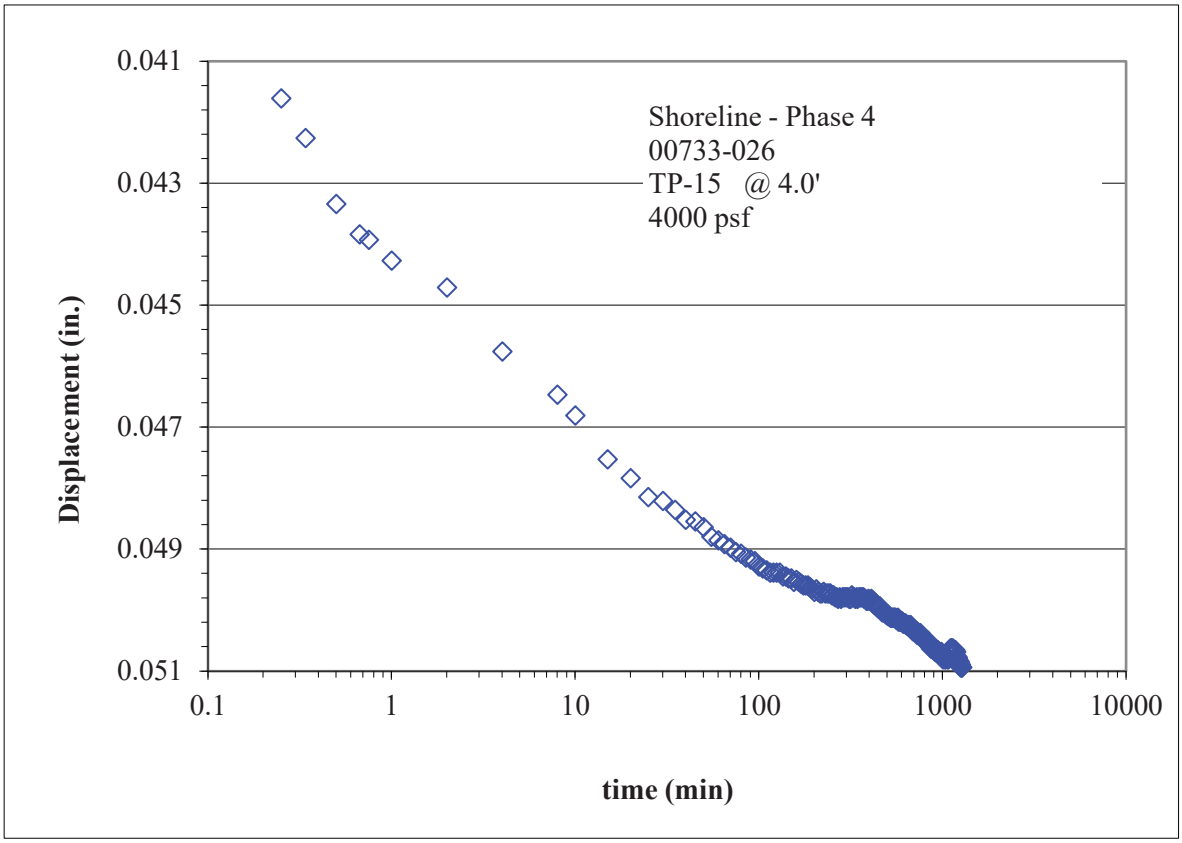
Project: Shoreline - Phase 4
No: 00733-026
Location: Hideout

Boring No.: TP-15
Sample:
Depth: 4.0'





Minimum Laboratory Soil Resistivity, pH of Soil for Use in Corrosion Testing, and Ions in Water by Chemically Suppressed Ion Chromatography *(AASHTO T 288, T 289, ASTM D4327, and C1580)*

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Project: **Shoreline - Phase 4**
No: **00733-026**
Location: Hideout
Date: 10/21/2023
By: JJ

Sample info.	Boring No.	TP-1				TP-6			
	Sample								
	Depth	7.0'				3.0'			
Water content data	Wet soil + tare (g)	50.34				44.63			
	Dry soil + tare (g)	46.65				41.86			
	Tare (g)	23.47				23.74			
	Water content (%)	15.9				15.3			
Chem. data	pH	8.3				8.1			
	Soluble chloride (ppm)	<50				<50			
	Soluble sulfate (ppm)	<50				<50			
Resistivity data	Pin method	2							
	Soil box	Miller Small							
		Approximate Soil condition (%)	Resistance Reading (Ω)	Soil Box Multiplier (cm)	Resistivity (Ω-cm)	Approximate Soil condition (%)	Resistance Reading (Ω)	Soil Box Multiplier (cm)	Resistivity (Ω-cm)
		As is	23760	0.67	15919	As is	23980	0.57	13669
		+3	8930	0.67	5983	+3	7863	0.57	4482
		+6	2606	0.67	1746	+6	3543	0.57	2020
		+9	2005	0.67	1343	+9	2646	0.57	1508
		+12	2138	0.67	1432	+12	2547	0.57	1452
						+15	2874	0.57	1638
	Minimum resistivity (Ω-cm)	**1343**				**1452**			

Entered by:_____
Reviewed:_____

APPENDIX C

ASCE Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Latitude: 40.644723
Longitude: -111.406904
Elevation: 6318.457698014131 ft (NAVD 88)

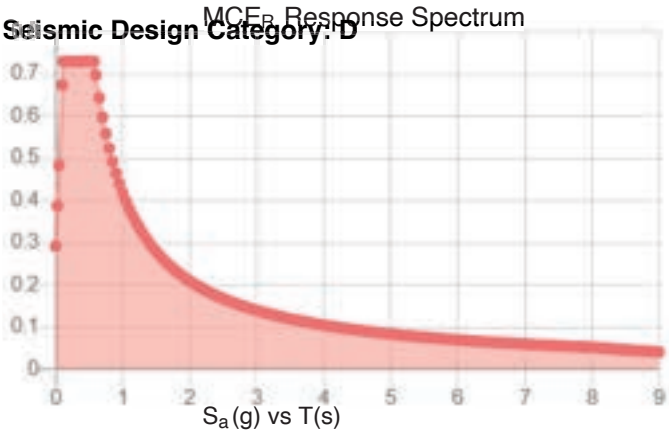
Seismic

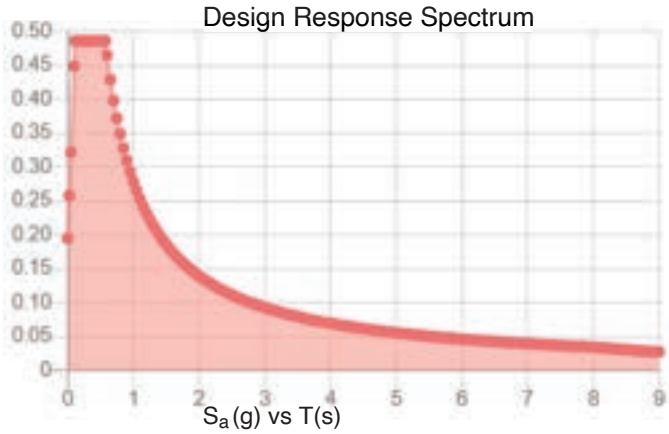
Site Soil Class: D - Default (see Section 11.4.3)

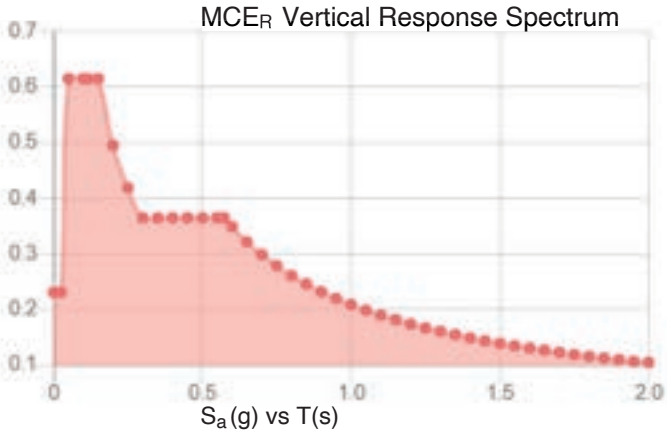
Results:

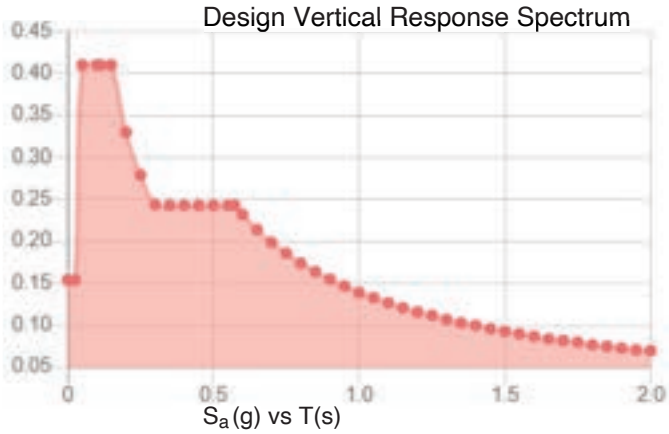
S_S :	0.53	S_{D1} :	0.279
S_1 :	0.188	T_L :	8
F_a :	1.376	PGA :	0.233
F_v :	2.224	PGA_M :	0.319
S_{MS} :	0.729	F_{PGA} :	1.367
S_{M1} :	0.418	I_e :	1
S_{DS} :	0.486	C_v :	1.053

Seismic Design Category: D









Data Accessed: **Tue Jan 09 2024**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

The ASCE Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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10860 N. Hideout Trail
Hideout, Utah 84036
435-659-4739

Application #	
Zone	
Tax ID #	
Date Received	
Received By	
Reviewed By	
Date Project Completed	

Subdivision Construction Permit
Application Instructions and Procedure

- **The plan set which you wish to construct must have received prior Preliminary and Final Approval from Town Council. To confirm this, contact the Town Planner, Thomas Eddington (thomas@inplandesign.com).**
- **This permit is necessary to create a subdivision, split a parcel, create a shared driveway, etc. Contact the Town of Hideout Engineer if you have questions. (T-O Engineers, Inc.; 435-315-3168; rtaylor@to-engineers.com).**
- **Please submit digital and hard copies to the Town of Hideout Building Department Administrator (Carol Kusterle; 435-659-6805; carol@hideoututah.gov)**

The following must be submitted with the completed application:

1. Town of Hideout report and approval.
2. Submit an electronic PDF set for construction permit review. If the set resolves any prior conditions of approval and closely matches the plan set approved by Town Council, the Town of Hideout Engineer will stamp the plans and distribute to the applicant and Town Administration as part of the application review process.
3. Provide an electronic copy of the engineer's estimate for review. If approved, the Town of Hideout Engineer will stamp and distribute to the applicant and Town Administration as part of the application review process.
4. Provide SWPPP (Erosion Control and Re-Vegetation Plan) if disturbing more than one acre.
5. Any grading near water ways or in the FEMA Floodplain will require a permit from the Utah Division of Water Rights. Applications are available at http://www.waterrights.utah.gov/strmalt/forms.asp.
6. Any excavation or grading of 1 acre or more requires a permit from the Water Quality Division. Applications are available at https://deq.utah.gov/division-water-quality.
7. Provide a Certificate of Liability Insurance meeting Town standards.
8. If applicable, a SWPPP plan and permit must be obtained from the State DEQ. For disturbance over 1 acre, a CGP permit must be obtained, for less, a CPOD single family residence permit must be obtained.

After the plans have been accepted by the Engineering Department and before the permit is issued, the following must be submitted:

9. No permit will be issued until final approval is granted by the Planning Commission or Planning Staff.
10. A performance bond shall be posted with the Town of Hideout prior to any final approved plat recorded in a principal amount of one hundred percent (100%) of the total estimated cost of any improvement or other performance required by or promised to the Town of Hideout plus 10% contingency as per section 12.12.170C of the Town code and the current fee and rate schedule. The Town may approve partial releases of performance bond prior to final release.
11. A cash warranty bond in the amount of 10% of an approved engineer's estimate is required. The warranty bond will be eligible for reimbursement one year following the date of acceptance of the improvements by the Town of Hideout. The amount to be reimbursed will depend upon a review by the Town of Hideout of the performance and satisfaction of Town code.
12. When impacting traffic, provide a Traffic Control Plan (TCP) in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).
13. Conduct a pre-construction meeting with Planning, Engineering, and Building Departments. No permit will be issued without a pre-construction meeting.
14. Upon completion of work, schedule a final inspection (see form: Final Inspection Checklist) and provide a set of as-built drawings identifying all changes in electronic PDF format.
15. Pay applicable permit fees.

ALL WORK MUST BE COMPLETED AS PER TOWN OF HIDEOUT CODE, JSSD CODE and APWA UTAH

- Town of Hideout Code: https://hideout.municipalcodeonline.com/book?type=ordinances#name=PREFACE
- JSSD: http://cdn.sqhk.co/jordanelle/ChgjcJu/JordanelleSpecialServiceDistrict-DesignStandards,ConstructionSpecifications,andStandardDrawings-1.pdf
- APWA: http://utah.apwa.net/PageDetails/24951

Town of Hideout

10860 No. Hideout Trail, Hideout, Utah 84036
Phone: (435) 659-4739
hideoututah.gov

Revised June 2021

Permit #:	SC 22.001
Permit Date:	01/12/22
Permit Fee:	See Below

Subdivision Construction Permit Application

Applicant Information

Applicant Name: GCD	Phone: 801-420-4333
Address: 3214 N University Ave #605	Email: glengabler@yahoo.com
Provo, UT 84604	
Project Address: Shoreline Phase 4	**Development Name:** Shoreline
Contractor Name: Sunroc	Phone: 801-669-1199
Contractor's License #: 326045-5501	Email: bboshell@sunroc.com
Liability Insurance Carrier: Beehive	Policy #: 917575053
Date Work To Begin: Late Dec 2021 or Early Jan 2022	**Date of Completion:** Spring 2022

The Applicant shall be the party responsible for the work and to whom all communications are to be directed.

Project Description

Describe Work:
Install temp sewer storage basin, on the south side of the current town pump station. Once temporary sewer is complete, fill and compact the existing sewer storage basin on the North side. Grub and start partial fill on the storm basin. Future design to be determined by the actual and approved overall Shoreline site calculations. All work must comply with Town of Hideout, JSSD and APWA Standards, as applicable. Working hours 8:00AM to 6:00PM. All truck traffic shall follow the instruction of the Mayor and Public Works Director. The Town may limit the number of trucks each day to avoid congestion and impacts to the community. All asphalt roads shall be swept or otherwise be kept free of debris at all times. All trucks shall be properly loaded (not overloaded) and will follow all traffic laws at all times.

Subdivision Construction Permit Fees and Bonds

SUBDIVISION CONSTRUCTION PERMIT FEE		
Flat Application Fee	$5,000	$5,000.00
BONDING		
Performance Bond: 100% of approved Engineer's Estimate Plus 10% Contingency See Instructions in Note 10.	1.1 X Engineer's Estimate of:_____	$
At least 10% of the above 110% (Performance Bond + Contingency) must be a Cash Warranty. Should the above be a credit bond, the cash amount due would be:	0.10 X the above cell's resultant value	$
INSPECTION AND QUALITY ASSURANCE REVIEWS FEE		
5% of the Engineer's Estimate	0.05 X Engineer's Estimate of: $305,860	$ $15,293
		Please submit separate checks for each item.

Submittal Requirements

☐ 1. Bond: ☑ Cash ☐ Letter of Credit ☑ 2. Permit Fee ☑ 3. Detailed Drawings ☐ 4. Traffic Control Plan ☑ 5. SWPPP/NOI
☑ 6. Certificate of Insurance ☑ 7. Engineer's Estimate ☐ 8. Planning Department Approval

By signing this application, the applicant agrees to comply with all State and Federal Laws and Town of Hideout Design and Construction Standards, Town Codes, and ordinances.

Applicant Signature: Glen Gabler	Date: 12/14/21
Application Verified as Complete By:	
Approved By: G. Ryan Taylor	Date: 01/12/22
Final Inspection:	Date:

A SIGNED COPY OF THIS PERMIT APPLICATION MUST BE AVAILABLE AT THE JOB SITE. This permit is issued only as permission to excavate in the public right of way. It is not a grant of easement or other similar interest. Permittee shall acquire easements from affected owners as required.

SUNROC CORPORATION

CONSTRUCTION DIVISION

525 ARROWHEAD TRAIL, SPANISH FORK, UTAH 84660 (801) 722-2100

HIDEOUT UTAH
APPROVED
TOWN OF HIDEOUT ENGINEERING DEPT.
G. Ryan Taylor, P.E., T-O Engineers
12/16/2021

CONTRACT PROPOSAL

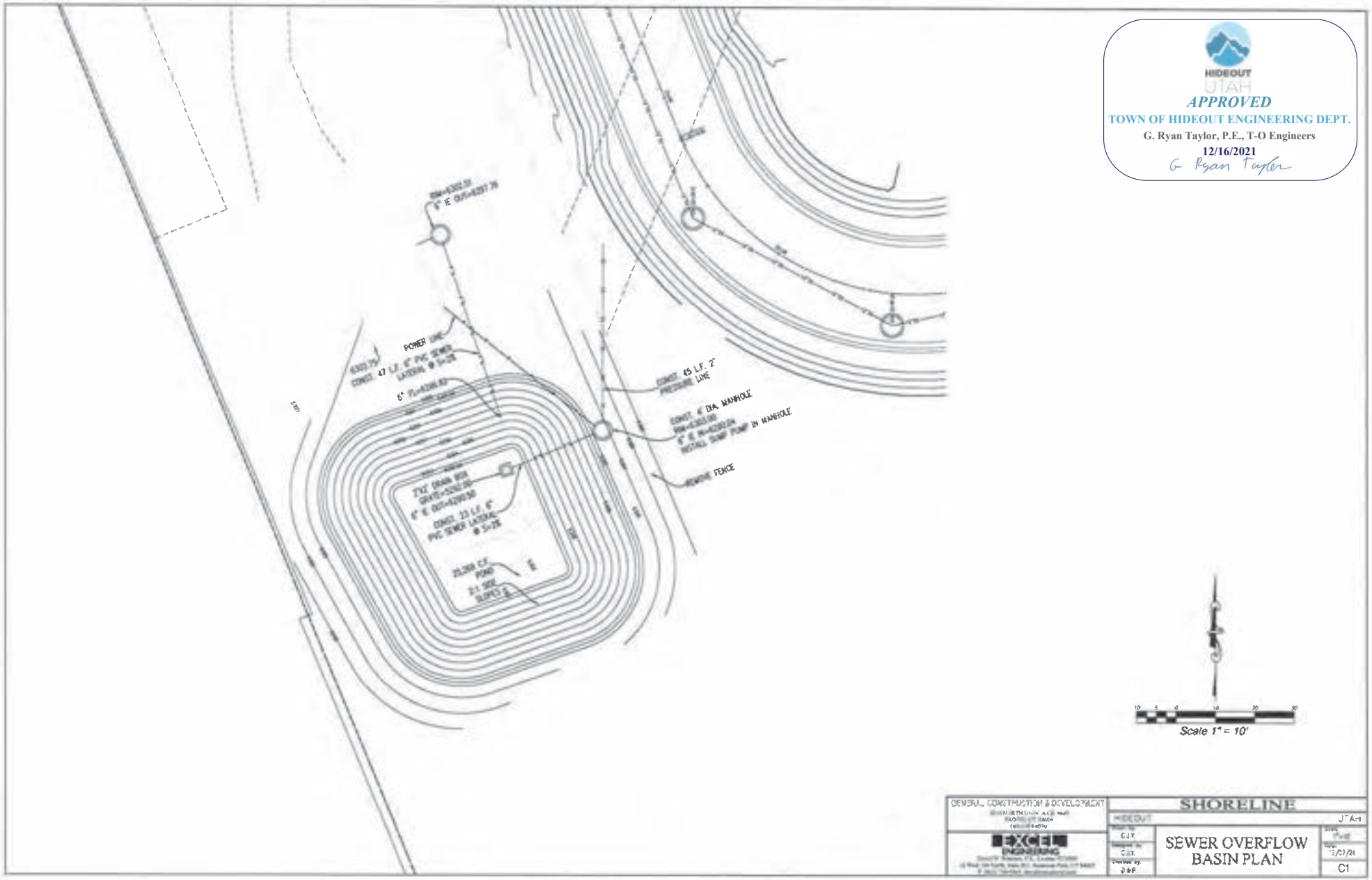
Customer:	General Construction & Development	Contact:	GLEN GABLER
Address:	3214 N University Ave #605 Provo, UT 84604	Phone: Email:	() - glengabler@yahoo.com
Project:	SHORELINE PH4- TEMP SEWER EX, FILL SWR BASIN & DETENTION rev 12-13	Addendum:	
Project Location:	HIDEOUT, UT	Date:	12/13/2021

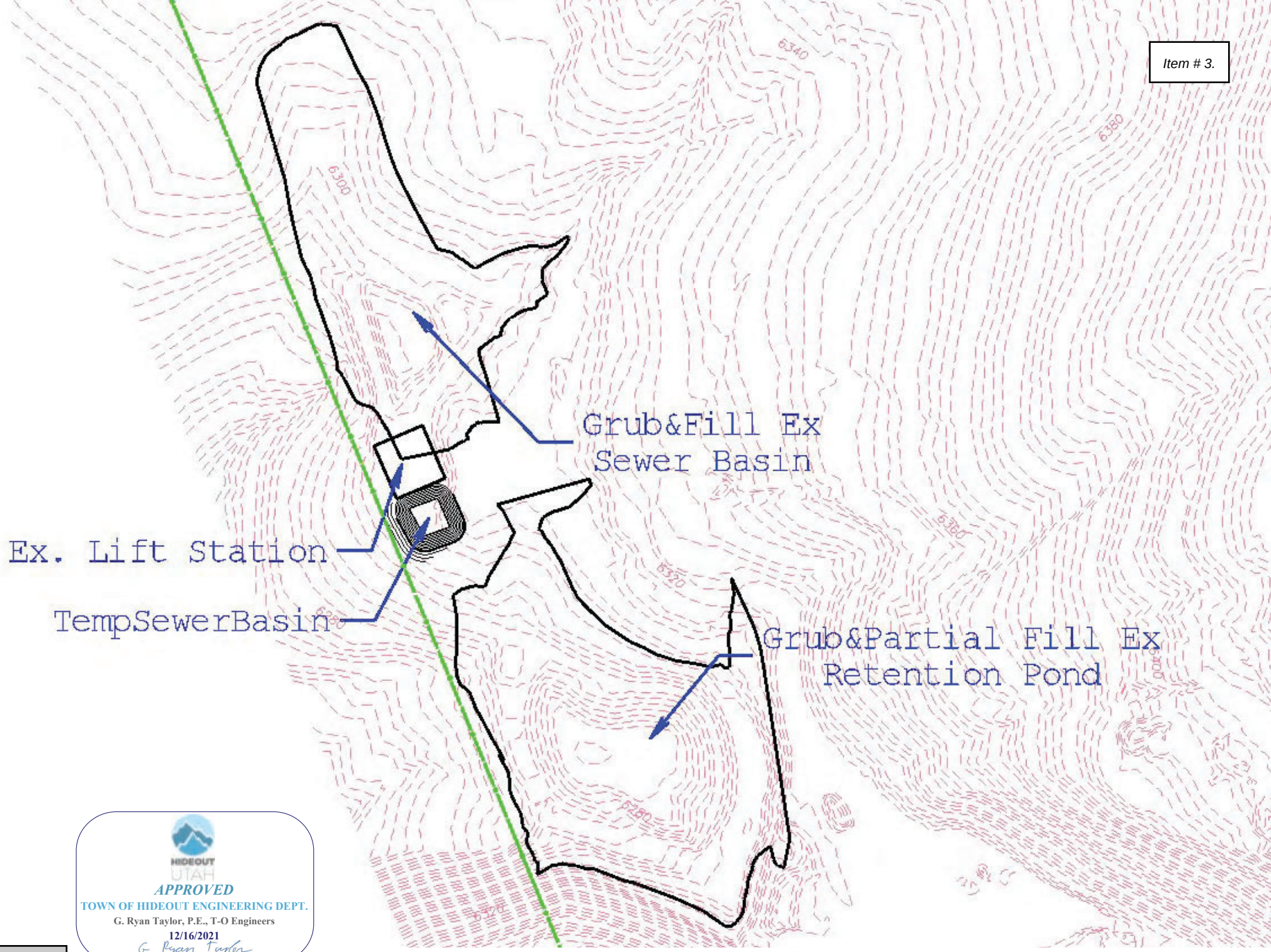
SUNROC CORPORATION MAY WITHDRAW THIS PROPOSAL IF WRITTEN ACCEPTANCE IS NOT RECEIVED FROM THE BUYER WITHIN 30 DAYS OF THE PROPOSAL DATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
SHORELINE TEMP SEWER BSN, FILL EX. SEWER & RET BSN					
PH 4 BUILD TEMP SEWER BASIN 2021					
110	CLEAR & GRUB FOR TEMP SEWER BASIN	8,000.000	SF	$ 0.19	$1,520.00
120	CUT & FILL TEMP SEWER BASIN	968.000	CY	$ 4.50	$4,356.00
		- EARTHWORK TEMP SEWER BASIN SUBTOTAL			$5,876.00
140	ROTATE EXISTING MANHOLE	1.000	EA	$1,000.00	$1,000.00
160	3X3 BOX (2 W/ LID, 1 W/GRATE)	1.000	EA	$3,618.00	$3,618.00
		- STORM DRAIN SUBTOTAL			$4,618.00
180	6" SANITARY SEWER (11-12' DEEP)	60.000	LF	$ 48.00	$2,880.00
190	48" SSMH (12' DEEP MANHOLES)	1.000	EA	$4,492.00	$4,492.00
		- SANITARY SEWER SUBTOTAL			$7,372.00
210	2" PRESSURE LINE SEWER LINE	70.000	LF	$ 56.00	$3,920.00
220	3" POWER CONDUIT (DIG, SAND & BACKFILL ONLY)	100.000	LF	$ 13.50	$1,350.00
		-CULINARY & PRESSURE WATER SUBTOTAL			$5,270.00
		SUBTOTAL PH4 TEMP SEWER BASIN			$23,136.00
PH4 GRUB & FILL EXISTING SEWER					
310	CLEAR & GRUB EXISTING SEWER BASIN	74,262.400	SF	$ 0.11	$8,168.86
320	BORROW- FILL & COMPACT	20,378.000	CY	$ 6.95	$141,627.10
		*SUBTOTAL PH4 FILL EXISTING SEWER BASIN			$149,795.96
*PH4 GRUB & FILL EXISTING DETENTION POND					
410	CLEAR & GRUB EXISTING DETENTION POND	96,139.000	SF	$ 0.11	$10,575.29
420	BORROW- FILL & COMPACT	17,604.600	CY	$ 6.95	$122,351.97
		*SUBTOTAL PH4 FILL EXISTING DETENTION POND			$132,927.26
				Grand Total:	$305,859.22

NOTES & EXCLUSIONS:

NO IMPORTED FILL IS INCLUDED IN THIS PROPOSAL AND WILL BE EXTRA COST IF STOCKPILE IS NOT SUFFICIENT.


HIDEOUT
UTAH
APPROVED
TOWN OF HIDEOUT ENGINEERING DEPT.
G. Ryan Taylor, P.E., T-O Engineers
12/16/2021
POWER LINE
CONST. 45 L.F. 2" PRESSURE LINE
CONST. 4' DIA. MANHOLE
INSTALL SUMP PUMP IN MANHOLE
REMOVE FENCE
Scale 1" = 10'
GENERAL CONSTRUCTION & DEVELOPMENT
EXCEL ENGINEERING
SHORELINE
HIDEOUT
SEWER OVERFLOW BASIN PLAN
C1



HIDEOUT UTAH

APPROVED

TOWN OF HIDEOUT ENGINEERING DEPT.

G. Ryan Taylor, P.E., T-O Engineers

12/16/2021

G Ryan Taylor

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/11/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large fill area below canyon
Location(s)
Observations and Comments Dumptruck and scraper bringing native material from large pile to fill area. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 6''-1' lift at around 10-12' below top of subgrade.
Discrepancies

Weather Partly Cloudy
Temperature Cool 45 - 50

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/E2FA7C0A-2AEF-47CB-D63C-D5263C57A28E
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/11 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/22/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected
Location(s)
Observations and Comments Showed up for visuals and no one was there.
Discrepancies

Weather Clear
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/D87072DC-3087-4F3B-E09D-206C9CAA67FB
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/22 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/23/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected
Location(s)
Observations and Comments No one was working
Discrepancies

Weather Clear
Temperature Frigid < 20

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/24/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area below canyon
Location(s)
Observations and Comments Large dump truck and scraper bringing in native material from large pile and dumping material to west side of fill area. Smaller dump trucks bringing material from basement excavation in shoreline and dumping on the east side of fill area starting new lift. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 10' below top of subgrade
Discrepancies

Weather Overcast
Temperature Frigid < 20

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/41DE98FE-FB9B-40D4-6E55-720EA6E10933
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/24 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/25/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill area below canyon
Location(s)
Observations and Comments Large dump truck and scraper bringing in native material from large pile and dumping material to west side of fill area. Smaller dump trucks bringing material from basement excavation in shoreline and dumping on the east side of fill area starting new lift. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 9' below top of subgrade
Discrepancies

Weather Overcast
Temperature Frigid < 20

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/8DFF2BB9-9E44-4D74-48E9-7158310BF973
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/25 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/28/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dumptruck and scraper bringing native material from large pile to fill area. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 6''-1' lift at around 8' below top of subgrade.
Discrepancies

Weather Clear
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/0381D1A1-0427-41FE-F77C-4605A5589015
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/28 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/2/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dumptruck and scraper bringing native material from large pile to fill area. One bulldozer leveling material with sheepsfoot wheels also compacting material. One lift was backfilled and compacted while I was there 6"-1' lift at around 4'-5' below top of subgrade.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/2438C31A-DF4A-4E98-C534-5DA18EE5C4E6
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/2 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/1/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dump trucks bringing native material from large pile to fill area. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 6"-1' lift at around 6'-7' below top of subgrade.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/3E439102-C178-4D82-6C7F-4638D2DDE8E3
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/1 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/3/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dumptrucks bringing native material from large pile to fill area. Small dumptruck bringing material from basement excavation also bringing in material. Bulldozer leveling material with sheepsfoot wheels also compacting material. One lift was backfilled and compacted while I was there 6"-1' lift at around 2'-3' below top of subgrade.
Discrepancies

Weather Overcast
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/F7B55FA1-4800-4794-CE2A-B4B111A5E4B0
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/3 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/16/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Old Sewage spillover pond
Location(s)
Observations and Comments Dump trucks bringing native material to old sewage spillover pond North of the lift station. Bulldozer with sheepsfoot wheels compacting material. Two 1' lift were backfilled and compacted while I was there.
Discrepancies

Weather Snow
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/FEC1313F-3649-4314-263C-8444B32D5503
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/16 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/7/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dumptruck and scraper bringing native material from large pile to fill area. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 6"-1' lift at around 1' below top of subgrade to top of subgrade on East side of fill area. West side of fill area still needed 1-2 lifts to create gradient for water drainage. I also grabbed three samples from large native pile for soil classification.
Discrepancies

Weather Partly Cloudy
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/790C248B-7FFE-4208-E53E-E82ED507F823
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/7 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/8/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Northwest entrance to fill area/bowl
Location(s)
Observations and Comments Two dumptrucks bringing native material to Northwest entrance of large fill area. Two bulldozers leveling material. One bulldozer with sheepsfoot wheels compacting material. One 1' lift was backfilled and compacted while I was there.
Discrepancies

Weather Snow
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/B8EFAF15-33E6-4C15-BF1D-C8DEEB2A17C9
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/8 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/10/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Canyon Area and area by large native material stockpile
Location(s)
Observations and Comments Dumptrucks taking material from large native stock pile and dumping it in canyon area. Two bulldozers leveling material near area with the large native material stockpiled.
Discrepancies

Weather Clear
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/B6B1604D-2484-40EB-6A68-9048A4DC49EF
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/10 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/14/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Construction entrance road
Location(s)
Observations and Comments Two dump trucks taking organic material and topsoil from area west of construction road and taking it somewhere in canyon area. Two bulldozers leveling material and compacting it for a temporary road for heavy equipment to use. +300'-400' S of Homesite #39
Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/15/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area
Location(s)
Observations and Comments Excavator filling two dump trucks with native material from large stockpile and dumping it in fill area north of old sewage overflow pond. Bulldozer leveling material. No compaction was done while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/8E591CB7-6704-4F60-137D-293EB4987685
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/15 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/17/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area East of Sewage Lift Station
Location(s)
Observations and Comments Backfilling fill area 100' East of old sewage spillover pond. Dump truck bringing in native material from large pile and bulldozer with sheepsfoot wheels leveling and compacting material. One 1' lift was backfilled and compacted while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Cool 45 - 50

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/ED454ECC-8FD4-43A7-9619-D18D6EADE466
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/17 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/18/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Old Sewage Spillover Pond
Location(s)
Observations and Comments Two dump trucks bringing native material to old sewage spillover pond. Bulldozer with sheepsfoot wheels leveling and compacting material. Two 1' lifts were backfilled and compacted while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/5A005774-1B86-4E29-CA4D-9407543E6CD8
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/18 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/31/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area East of Old Sewage Pond
Location(s)
Observations and Comments Two dump trucks bringing native material to fill area +100' east of old sewage pond area. Bulldozer leveling and compacting material. One 1' lift was placed while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/5E4C8ED3-D098-43D4-52D9-B6BE318A3E00
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/31 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/4/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material from large stockpile and dumping it 200' to the east to large fill area. A large bulldozer leveled the material and compacted the dumped material with sheepsfoot wheels attached to the bulldozer. 6"-1' lift was placed and compacted while I was there.
Discrepancies

Weather Overcast
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/1988E7D3-5EAF-4673-9469-6794D89D8A7E
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/4 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/5/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material from large stockpile and dumping it 200' to the east to large fill area. A large bulldozer leveled the material and compacted the dumped material with sheepsfoot wheels attached to the bulldozer. 6"-1' lift was placed and compacted while I was there.
Discrepancies

Weather Snow
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/3B20E954-5817-4D1F-295D-100F9E5A265A
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/5 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/6/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Bowl Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material from large stockpile to be dumped in bowl area between construction road and heavy equipment bypass road or shoulder area. Large bulldozer with sheepsfoot wheels levels and compacts material with sheepsfoot wheels on bulldozer. Two 6"-1' lifts were backfilled and compacted while I was there.
Discrepancies

Weather Clear
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/80C43921-64CE-4B60-0D18-63BC5AC9CE86
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/6 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/7/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Old Sewage overflow pond
Location(s)
Observations and Comments Excavator loading dump truck from large native material stockpile. Dump truck taking native material to phase 3 roadway. That material was then scooped up by a loader and dumped on roadway. The material on the roadway was then compacted with a smooth drum roller. Dump truck was also dumping material in area by the old sewage overflow pond area and leveled by bulldozer.
Discrepancies

Weather Clear
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/F6A27F41-6BBD-4CEB-DB84-2E6DABC51925
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/7 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/8/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Area North of Sewage Lift Station
Location(s)
Observations and Comments Excavator loading dump truck with native material from large stockpile. Dump truck taking material and dumping it +100' N of sewage station. Bulldozer leveling material. No compaction was done while I was there.
Discrepancies

Weather Clear
Temperature Warm 65 - 80

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/076786BE-65B6-4537-A592-87CD752530DA
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/8 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/15/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material from large stockpile and dumping it 200' to the east to large fill area. Two large bulldozers leveled the material and one compacted the dumped material with sheepsfoot wheels attached to the bulldozer. 6"-1' lift was placed and compacted while I was there.
Discrepancies

Weather Clear
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/20/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Bowl Area
Location(s)
Observations and Comments Removing topsoil from bowl area west of heavy equipment bypass road next to construction road. Dump truck bringing native material for slopes and bulldozer leveling material.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/28/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill area
Location(s)
Observations and Comments Excavator filling two large dump trucks with native material from large stockpile and dumping it in bowl area between construction road and heavy equipment by pass road. Large bulldozer with sheepsfoot wheels leveling and compacting material. One 6"-1' lift was leveled and compacted while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/6680DB82-256E-43BB-01C2-B7A5FD2F077C
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/28 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 5/6/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area
Location(s)
Observations and Comments Excavator loading dump truck with native material from large pile and dumping it 350'-400' NE of sewage lift station. Bulldozer levels material and water truck wets bulldozed material and bulldozer with sheepsfoot wheels rolls over wet material several times and compacts it. One 50'X100' section backfilled and compacted in one lift while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Warm 65 - 80

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/A4153A9B-4833-416A-782D-FF5FC695702F
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 5/6 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 5/10/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material. Dump trucks dumping material on fill area 300'-350' E of sewage lift station. Bulldozer levels material in 6"-1' lift and compacts it by rolling over material several times with large sheepsfoot wheels. One 100'X50' backfilled and compacted while I was there.
Discrepancies

Weather Partly Cloudy w/ Wind
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

Headquarters
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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : February 2, 2022
Date Tested : February 2, 2022
Time :
Sample: Mixed Pile 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	1210.2	33.4	66.6	67	
2.5"	390.7	10.8	55.8	56	
2"	163.2	4.5	51.3	51	
1 1/2"	0.0	0.0	51.3	51	
1"	401.3	11.1	40.3	40	
3/4"	60.2	1.7	38.6	39	
5/8"	0.0	0.0	38.6	39	
1/2"	159.1	4.4	34.2	34	
3/8"	54.6	1.5	32.7	33	
#4	149.1	4.1	28.6	29	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	115.9	3.2	25.4	25	
#10	23.0	0.6	24.8	25	
#16	68.9	1.9	22.9	23	
#20	0.0	0.0	22.9	23	
#30	0.0	0.0	22.9	23	
#40	114.9	3.2	19.7	20	
#50	30.8	0.8	18.9	19	
#60		0.0	18.9	19	
#70		0.0	18.9	19	
#80		0.0	18.9	19	
#100	92.4	2.5	16.3	16	
#200	83.6	2.3	14.0	14.0	
-#201	14.4				
Total	3132.3				

**ASTM Soil Classification: CLAYEY GRAVEL (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	3625.9
Washed Weight of Sample ©	3132.5
% Passing #200 ((B-C/B))*100	0.13608
% Passing #200 Sieve	**13.6%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	30	18
Plastic Index	12	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	3864.2
Dry Wt.	3625.9
H2O Wt.	238.3
H2O %	6.6%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

Headquarters
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ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shoreline Phase 4
Project Number : 22SM1432.13
Location: Mixed Pile
Boring:
Description: Native
As Received Water Content: Not Requested

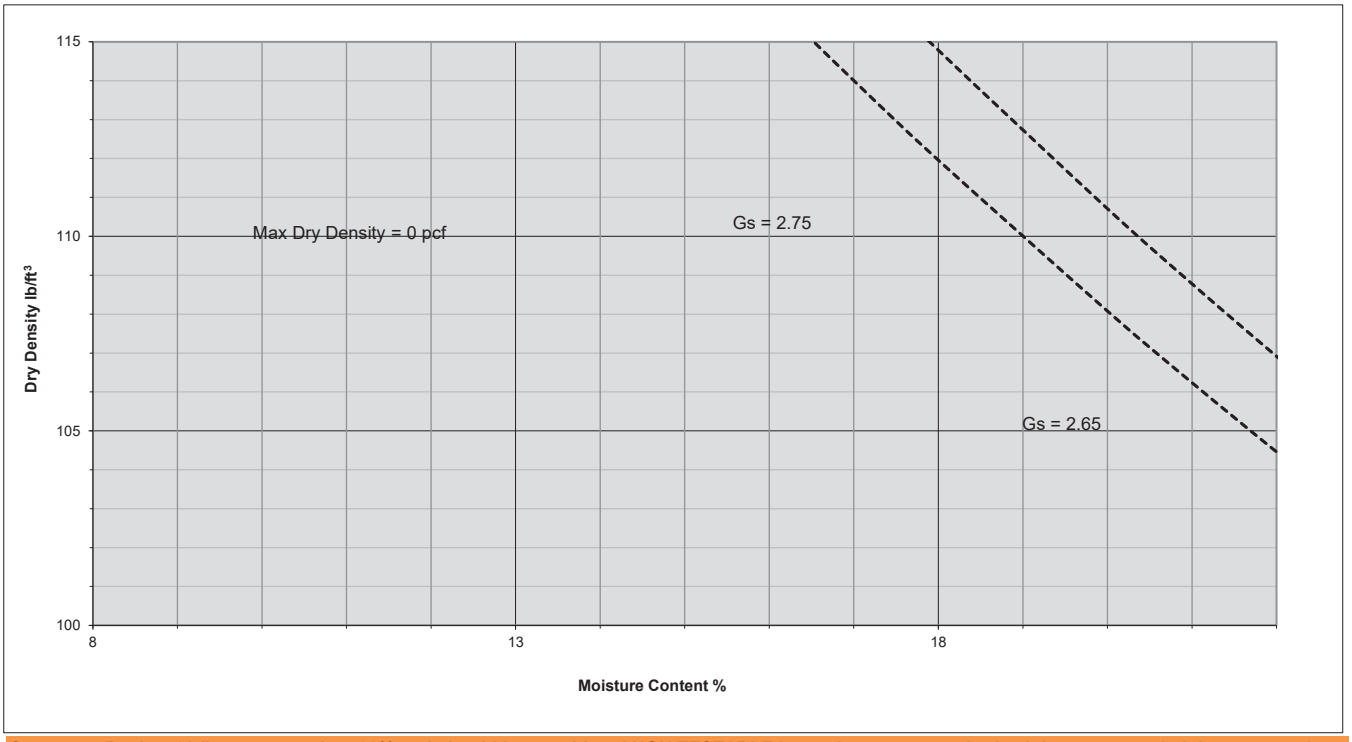
Date: 2/2/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	45.8	Percent Passing	54.2
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Cameron Marziale
Entered By: Wes Parkin
Reviewd By: Wes Parkin

Headquarters
50 East 100 South
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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: .arge Pile East 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	0.0	0.0	100.0	100	
2.5"	0.0	0.0	100.0	100	
2"	577.7	23.1	76.9	77	
1 1/2"	0.0	0.0	76.9	77	
1"	468.0	18.7	58.2	58	
3/4"	168.3	6.7	51.4	51	
5/8"	0.0	0.0	51.4	51	
1/2"	203.1	8.1	43.3	43	
3/8"	79.3	3.2	40.1	40	
#4	193.3	7.7	32.4	32	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	154.1	6.2	26.2	26	
#10	25.5	1.0	25.2	25	
#16	105.7	4.2	21.0	21	
#20	0.0	0.0	21.0	21	
#30	0.0	0.0	21.0	21	
#40	145.4	5.8	15.2	15	
#50	11.8	0.5	14.7	15	
#60		0.0	14.7	15	
#70		0.0	14.7	15	
#80		0.0	14.7	15	
#100	52.5	2.1	12.6	13	
#200	16.6	0.7	11.9	11.9	
-#201	3.2				
Total	2204.5				

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	2499.9
Washed Weight of Sample ©	2204.5
% Passing #200 ((B-C/B))*100	0.11816
% Passing #200 Sieve	**11.8%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	31	16
Plastic Index	16	
ASTM Classification*	**GP-GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	2616.9
Dry Wt.	2499.9
H2O Wt.	117.0
H2O %	4.7%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

**ASTM Soil Classification: POORLY-GRADED GRAVEL with CLAY (GP-GC)*

Headquarters
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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: 2 West Pile West Side 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	0.0	0.0	100.0	100	
2.5"	742.0	22.7	77.3	77	
2"	203.0	6.2	71.0	71	
1 1/2"	263.0	8.1	63.0	63	
1"	84.0	2.6	60.4	60	
3/4"	106.5	3.3	57.1	57	
5/8"	0.0	0.0	57.1	57	
1/2"	115.7	3.5	53.6	54	
3/8"	76.3	2.3	51.3	51	
#4	178.0	5.5	45.8	46	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	131.4	4.0	41.8	42	
#10	30.4	0.9	40.8	41	
#16	77.8	2.4	38.5	38	
#20	0.0	0.0	38.5	38	
#30	0.0	0.0	38.5	38	
#40	134.1	4.1	34.3	34	
#50	54.8	1.7	32.7	33	
#60		0.0	32.7	33	
#70		0.0	32.7	33	
#80		0.0	32.7	33	
#100	238.3	7.3	25.4	25	
#200	163.2	5.0	20.4	20.4	
-#201	14.6				
Total	2613.1				

**ASTM Soil Classification: CLAYEY GRAVEL WITH SAND (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	3262.7
Washed Weight of Sample ©	2612.6
% Passing #200 ((B-C/B))*100	0.19925
% Passing #200 Sieve	**19.9%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	34	12
Plastic Index	22	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	3501.1
Dry Wt.	3262.7
H2O Wt.	238.4
H2O %	7.3%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: Native Small East 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	799.0	37.3	62.7	63	
2.5"	0.0	0.0	62.7	63	
2"	0.0	0.0	62.7	63	
1 1/2"	0.0	0.0	62.7	63	
1"	86.5	4.0	58.6	59	
3/4"	56.1	2.6	56.0	56	
5/8"	0.0	0.0	56.0	56	
1/2"	69.7	3.3	52.8	53	
3/8"	75.6	3.5	49.2	49	
#4	126.1	5.9	43.3	43	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	97.8	4.6	38.8	39	
#10	22.9	1.1	37.7	38	
#16	59.3	2.8	34.9	35	
#20	0.0	0.0	34.9	35	
#30	0.0	0.0	34.9	35	
#40	108.0	5.0	29.9	30	
#50	33.0	1.5	28.3	28	
#60		0.0	28.3	28	
#70		0.0	28.3	28	
#80		0.0	28.3	28	
#100	99.0	4.6	23.7	24	
#200	76.1	3.6	20.2	20.2	
-#201	9.6				
Total	1718.7				

**ASTM Soil Classification: CLAYEY GRAVEL WITH SAND (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	2140.7
Washed Weight of Sample ©	1718.5
% Passing #200 ((B-C/B))*100	0.19723
% Passing #200 Sieve	**19.7%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	35	16
Plastic Index	18	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	2283.4
Dry Wt.	2140.7
H2O Wt.	142.7
H2O %	6.7%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

Headquarters
50 East 100 South
Heber City, UT 84032

Tele: (435) 654 6600
Fax: (435) 654 6622

ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Larger West Pile
Boring:
Description: Native
As Received Water Content: Not Requested

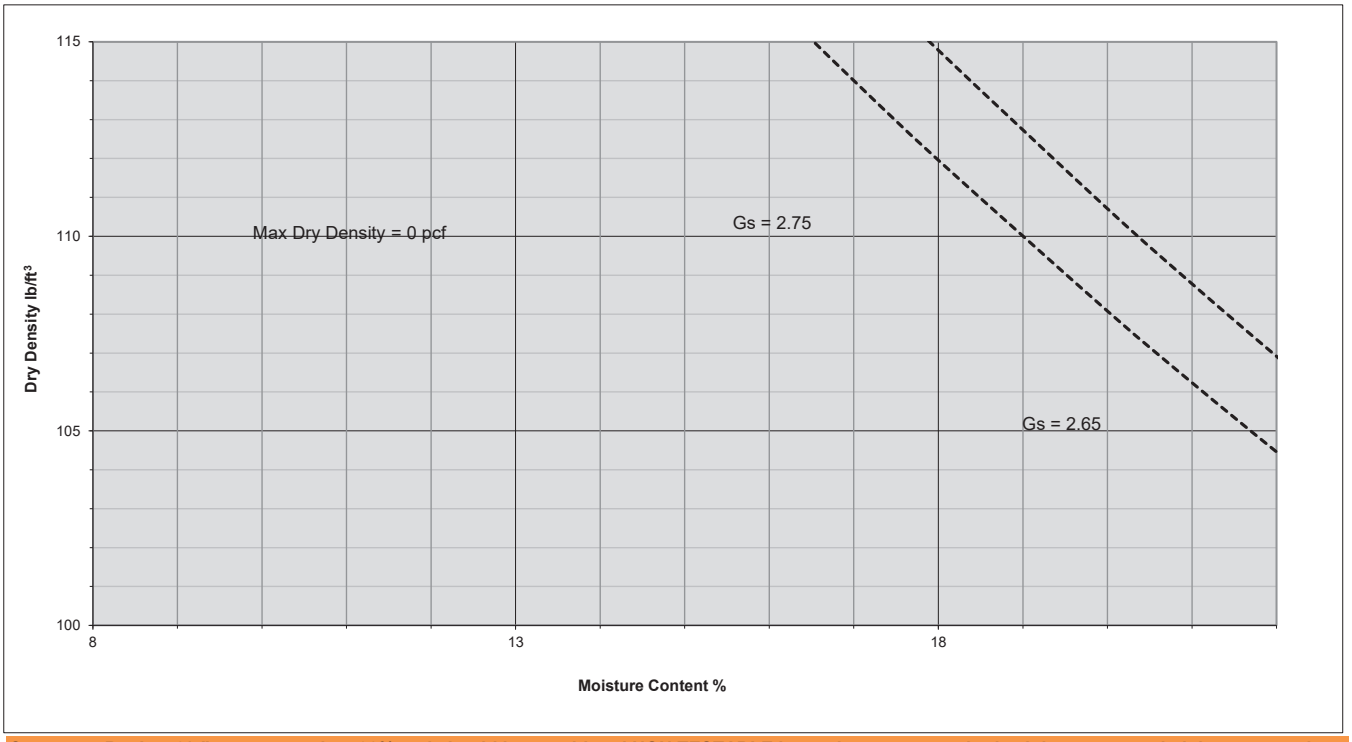
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	53.5	Percent Passing	46.5
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Nick Sorge
Entered By: Spencer Searcy
Reviewd By: Wes Parkin

Headquarters
50 East 100 South
Heber City, UT 84032

Tele: (435) 654 6600
Fax: (435) 654 6622

ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

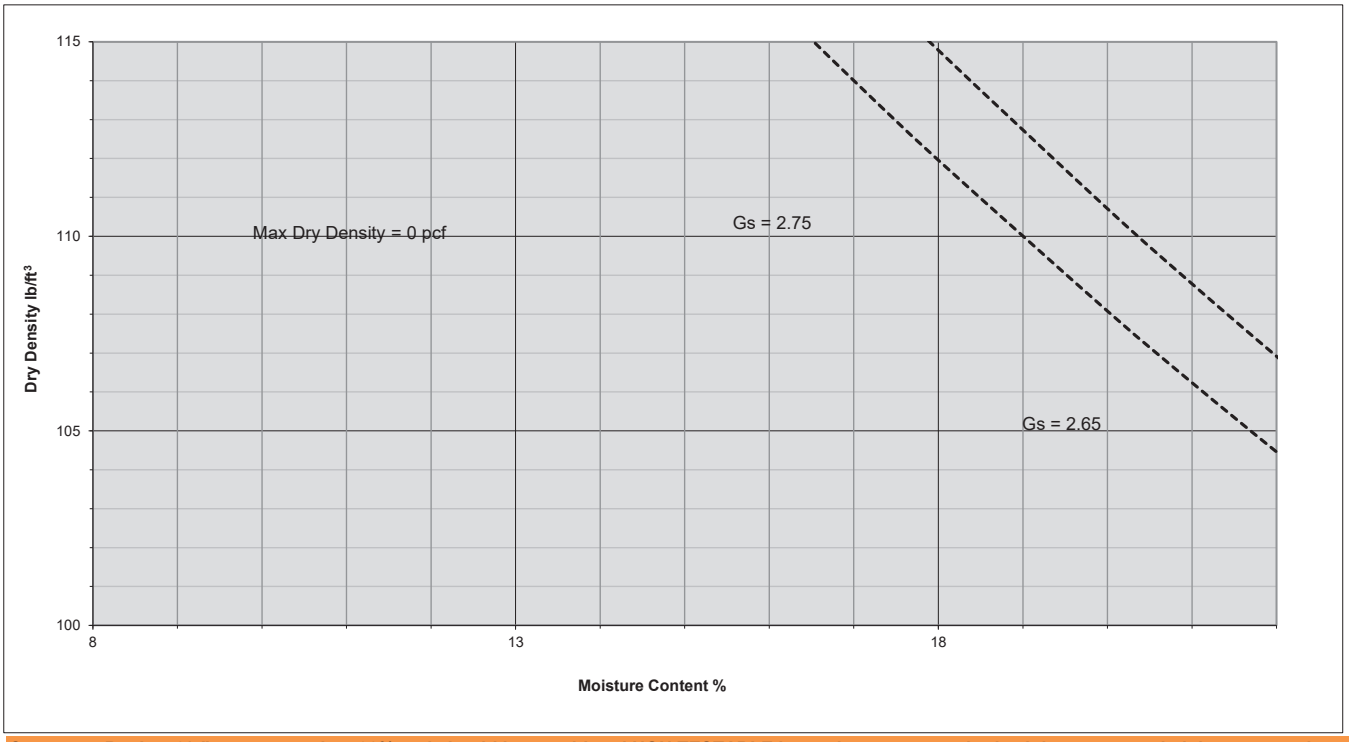
Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Larger West Pile West Side to
Boring:
Description: Native
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

As Received Water Content: Not Requested
Method of Compaction: ASTM D1557 C
Preparation Method: Wet
Rammer: Manual
Split: No
Sieve No. 3/4"
Percent Retained: 43.5
Percent Passing 56.5
Specific Gravity: 2.65 Assumed
Rock Correction: Yes

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Nick Sorge
Entered By: Spencer Searcy
Reviewd By: Wes Parkin

Headquarters
50 East 100 South
Heber City, UT 84032

Tele: (435) 654 6600
Fax: (435) 654 6622

ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Smaller East Pile
Boring:
Description: Native
As Received Water Content: Not Requested

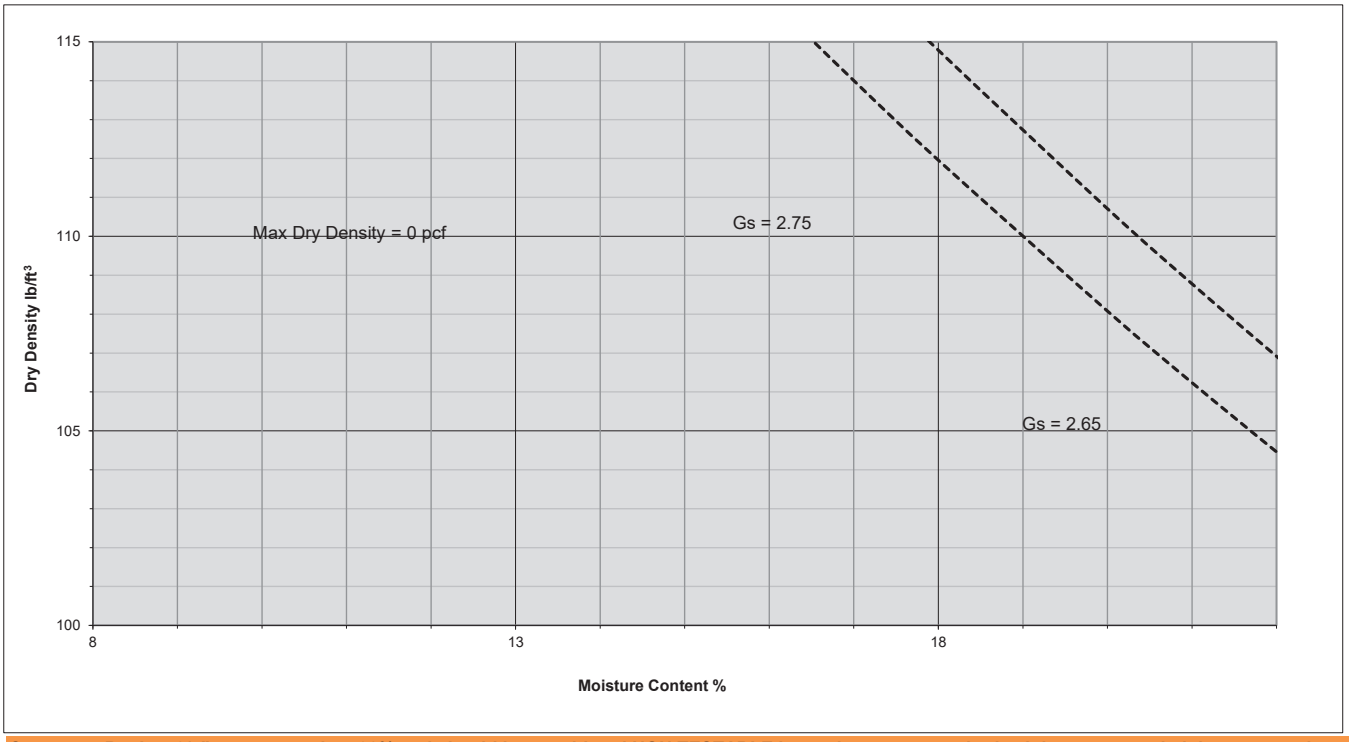
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	41.8	Percent Passing	58.2
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Nick Sorge
Entered By: Spencer Searcy
Reviewd By: Wes Parkin

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/11/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large fill area below canyon
Location(s)
Observations and Comments Dumptruck and scraper bringing native material from large pile to fill area. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 6''-1' lift at around 10-12' below top of subgrade.
Discrepancies

Weather Partly Cloudy
Temperature Cool 45 - 50

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/E2FA7C0A-2AEF-47CB-D63C-D5263C57A28E
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/11 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/22/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected
Location(s)
Observations and Comments Showed up for visuals and no one was there.
Discrepancies

Weather Clear
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/D87072DC-3087-4F3B-E09D-206C9CAA67FB
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/22 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/23/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected
Location(s)
Observations and Comments No one was working
Discrepancies

Weather Clear
Temperature Frigid < 20

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/24/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area below canyon
Location(s)
Observations and Comments Large dump truck and scraper bringing in native material from large pile and dumping material to west side of fill area. Smaller dump trucks bringing material from basement excavation in shoreline and dumping on the east side of fill area starting new lift. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 10' below top of subgrade
Discrepancies

Weather Overcast
Temperature Frigid < 20

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/41DE98FE-FB9B-40D4-6E55-720EA6E10933
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/24 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/25/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill area below canyon
Location(s)
Observations and Comments Large dump truck and scraper bringing in native material from large pile and dumping material to west side of fill area. Smaller dump trucks bringing material from basement excavation in shoreline and dumping on the east side of fill area starting new lift. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 9' below top of subgrade
Discrepancies

Weather Overcast
Temperature Frigid < 20

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/8DFF2BB9-9E44-4D74-48E9-7158310BF973
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/25 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 2/28/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dumptruck and scraper bringing native material from large pile to fill area. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 6''-1' lift at around 8' below top of subgrade.
Discrepancies

Weather Clear
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/0381D1A1-0427-41FE-F77C-4605A5589015
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 2/28 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/2/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dumptruck and scraper bringing native material from large pile to fill area. One bulldozer leveling material with sheepsfoot wheels also compacting material. One lift was backfilled and compacted while I was there 6"-1' lift at around 4'-5' below top of subgrade.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/2438C31A-DF4A-4E98-C534-5DA18EE5C4E6
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/2 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/1/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dump trucks bringing native material from large pile to fill area. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 6"-1' lift at around 6'-7' below top of subgrade.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/3E439102-C178-4D82-6C7F-4638D2DDE8E3
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/1 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/3/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dumptrucks bringing native material from large pile to fill area. Small dumptruck bringing material from basement excavation also bringing in material. Bulldozer leveling material with sheepsfoot wheels also compacting material. One lift was backfilled and compacted while I was there 6"-1' lift at around 2'-3' below top of subgrade.
Discrepancies

Weather Overcast
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/F7B55FA1-4800-4794-CE2A-B4B111A5E4B0
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/3 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/16/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Old Sewage spillover pond
Location(s)
Observations and Comments Dump trucks bringing native material to old sewage spillover pond North of the lift station. Bulldozer with sheepsfoot wheels compacting material. Two 1' lift were backfilled and compacted while I was there.
Discrepancies

Weather Snow
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/FEC1313F-3649-4314-263C-8444B32D5503
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/16 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/7/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area Below Canyon
Location(s)
Observations and Comments Dumptruck and scraper bringing native material from large pile to fill area. Two bulldozers leveling material and one bulldozer with sheepsfoot wheels compacting material. One lift was backfilled and compacted while I was there 6"-1' lift at around 1' below top of subgrade to top of subgrade on East side of fill area. West side of fill area still needed 1-2 lifts to create gradient for water drainage. I also grabbed three samples from large native pile for soil classification.
Discrepancies

Weather Partly Cloudy
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/790C248B-7FFE-4208-E53E-E82ED507F823
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/7 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/8/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Northwest entrance to fill area/bowl
Location(s)
Observations and Comments Two dumptrucks bringing native material to Northwest entrance of large fill area. Two bulldozers leveling material. One bulldozer with sheepsfoot wheels compacting material. One 1' lift was backfilled and compacted while I was there.
Discrepancies

Weather Snow
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/B8EFAF15-33E6-4C15-BF1D-C8DEEB2A17C9
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/8 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/10/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Canyon Area and area by large native material stockpile
Location(s)
Observations and Comments Dumptrucks taking material from large native stock pile and dumping it in canyon area. Two bulldozers leveling material near area with the large native material stockpiled.
Discrepancies

Weather Clear
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/B6B1604D-2484-40EB-6A68-9048A4DC49EF
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/10 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/14/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Construction entrance road
Location(s)
Observations and Comments Two dump trucks taking organic material and topsoil from area west of construction road and taking it somewhere in canyon area. Two bulldozers leveling material and compacting it for a temporary road for heavy equipment to use. +300'-400' S of Homesite #39
Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/1C41109A-4540-4360-DCFB-A82711175B16
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/14 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/15/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area
Location(s)
Observations and Comments Excavator filling two dump trucks with native material from large stockpile and dumping it in fill area north of old sewage overflow pond. Bulldozer leveling material. No compaction was done while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/8E591CB7-6704-4F60-137D-293EB4987685
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/15 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/17/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area East of Sewage Lift Station
Location(s)
Observations and Comments Backfilling fill area 100' East of old sewage spillover pond. Dump truck bringing in native material from large pile and bulldozer with sheepsfoot wheels leveling and compacting material. One 1' lift was backfilled and compacted while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Cool 45 - 50

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/ED454ECC-8FD4-43A7-9619-D18D6EADE466
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/17 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/18/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Old Sewage Spillover Pond
Location(s)
Observations and Comments Two dump trucks bringing native material to old sewage spillover pond. Bulldozer with sheepsfoot wheels leveling and compacting material. Two 1' lifts were backfilled and compacted while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/5A005774-1B86-4E29-CA4D-9407543E6CD8
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/18 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 3/31/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area East of Old Sewage Pond
Location(s)
Observations and Comments Two dump trucks bringing native material to fill area +100' east of old sewage pond area. Bulldozer leveling and compacting material. One 1' lift was placed while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/5E4C8ED3-D098-43D4-52D9-B6BE318A3E00
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 3/31 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/4/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material from large stockpile and dumping it 200' to the east to large fill area. A large bulldozer leveled the material and compacted the dumped material with sheepsfoot wheels attached to the bulldozer. 6"-1' lift was placed and compacted while I was there.
Discrepancies

Weather Overcast
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/1988E7D3-5EAF-4673-9469-6794D89D8A7E
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/4 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/5/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material from large stockpile and dumping it 200' to the east to large fill area. A large bulldozer leveled the material and compacted the dumped material with sheepsfoot wheels attached to the bulldozer. 6"-1' lift was placed and compacted while I was there.
Discrepancies

Weather Snow
Temperature Freezing 20 - 32

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/3B20E954-5817-4D1F-295D-100F9E5A265A
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/5 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/6/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Bowl Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material from large stockpile to be dumped in bowl area between construction road and heavy equipment bypass road or shoulder area. Large bulldozer with sheepsfoot wheels levels and compacts material with sheepsfoot wheels on bulldozer. Two 6"-1' lifts were backfilled and compacted while I was there.
Discrepancies

Weather Clear
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/80C43921-64CE-4B60-0D18-63BC5AC9CE86
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/6 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/7/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Old Sewage overflow pond
Location(s)
Observations and Comments Excavator loading dump truck from large native material stockpile. Dump truck taking native material to phase 3 roadway. That material was then scooped up by a loader and dumped on roadway. The material on the roadway was then compacted with a smooth drum roller. Dump truck was also dumping material in area by the old sewage overflow pond area and leveled by bulldozer.
Discrepancies

Weather Clear
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/F6A27F41-6BBD-4CEB-DB84-2E6DABC51925
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/7 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/8/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Area North of Sewage Lift Station
Location(s)
Observations and Comments Excavator loading dump truck with native material from large stockpile. Dump truck taking material and dumping it +100' N of sewage station. Bulldozer leveling material. No compaction was done while I was there.
Discrepancies

Weather Clear
Temperature Warm 65 - 80

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/076786BE-65B6-4537-A592-87CD752530DA
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/8 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/15/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material from large stockpile and dumping it 200' to the east to large fill area. Two large bulldozers leveled the material and one compacted the dumped material with sheepsfoot wheels attached to the bulldozer. 6"-1' lift was placed and compacted while I was there.
Discrepancies

Weather Clear
Temperature Cold 32 - 45

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/46CC6FE1-F2F0-42F2-42F6-0726D32A20DC
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/15 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/20/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Bowl Area
Location(s)
Observations and Comments Removing topsoil from bowl area west of heavy equipment bypass road next to construction road. Dump truck bringing native material for slopes and bulldozer leveling material.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 4/28/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Fill area
Location(s)
Observations and Comments Excavator filling two large dump trucks with native material from large stockpile and dumping it in bowl area between construction road and heavy equipment by pass road. Large bulldozer with sheepsfoot wheels leveling and compacting material. One 6"-1' lift was leveled and compacted while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/6680DB82-256E-43BB-01C2-B7A5FD2F077C
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 4/28 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 5/6/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area
Location(s)
Observations and Comments Excavator loading dump truck with native material from large pile and dumping it 350'-400' NE of sewage lift station. Bulldozer levels material and water truck wets bulldozed material and bulldozer with sheepsfoot wheels rolls over wet material several times and compacts it. One 50'X100' section backfilled and compacted in one lift while I was there.
Discrepancies

Weather Partly Cloudy
Temperature Warm 65 - 80

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/A4153A9B-4833-416A-782D-FF5FC695702F
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 5/6 NS

Daily Construction Observation Rep

Report Date 4/30/2025
Inspection Date 5/10/2022
Project No 22SM1432.12

Client GCD

Address

Client Reference No
Crew Foreman Hal Thacker
Contractor Sunroc

Project Shoreline Phase 4
Pay Item
Item Inspected Large Fill Area
Location(s)
Observations and Comments Excavator loading two dump trucks with native material. Dump trucks dumping material on fill area 300'-350' E of sewage lift station. Bulldozer levels material in 6"-1' lift and compacts it by rolling over material several times with large sheepsfoot wheels. One 100'X50' backfilled and compacted while I was there.
Discrepancies

Weather Partly Cloudy w/ Wind
Temperature Mild 50 - 65

Time On Site

Inspector Nick Sorge
Digital Signature By User Login

Manager Kainen Trowery
Digital Signature By User Login

Report No.	Test Location/Elevation	Max Dry Density (pcf)	Opt. Moist. Content (%)	Dry Density (pcf)	Moist. Content (%)	Relative Comp. (%)	Req'd Comp. (%)	Pass Fail

System Link http://epic.vahalo.com/assignments/8AFF7703-5EA4-4CE9-32FD-89B3F91B672D
System Path Shoreline Phase 4 / SOILS - FIELD AND LAB TESTING / 22SM1432.12 DailyRpt 5/10 NS

Headquarters
50 East 100 South
Heber City, UT 84032

Tele : (435) 654-6600
Fax : (435) 654-6622

MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : February 2, 2022
Date Tested : February 2, 2022
Time :
Sample: Mixed Pile 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	1210.2	33.4	66.6	67	
2.5"	390.7	10.8	55.8	56	
2"	163.2	4.5	51.3	51	
1 1/2"	0.0	0.0	51.3	51	
1"	401.3	11.1	40.3	40	
3/4"	60.2	1.7	38.6	39	
5/8"	0.0	0.0	38.6	39	
1/2"	159.1	4.4	34.2	34	
3/8"	54.6	1.5	32.7	33	
#4	149.1	4.1	28.6	29	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	115.9	3.2	25.4	25	
#10	23.0	0.6	24.8	25	
#16	68.9	1.9	22.9	23	
#20	0.0	0.0	22.9	23	
#30	0.0	0.0	22.9	23	
#40	114.9	3.2	19.7	20	
#50	30.8	0.8	18.9	19	
#60		0.0	18.9	19	
#70		0.0	18.9	19	
#80		0.0	18.9	19	
#100	92.4	2.5	16.3	16	
#200	83.6	2.3	14.0	14.0	
-#201	14.4				
Total	3132.3				

**ASTM Soil Classification: CLAYEY GRAVEL (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	3625.9
Washed Weight of Sample ©	3132.5
% Passing #200 ((B-C/B))*100	0.13608
% Passing #200 Sieve	**13.6%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	30	18
Plastic Index	12	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	3864.2
Dry Wt.	3625.9
H2O Wt.	238.3
H2O %	6.6%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

Headquarters
50 East 100 South
Heber City, UT 84032

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ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

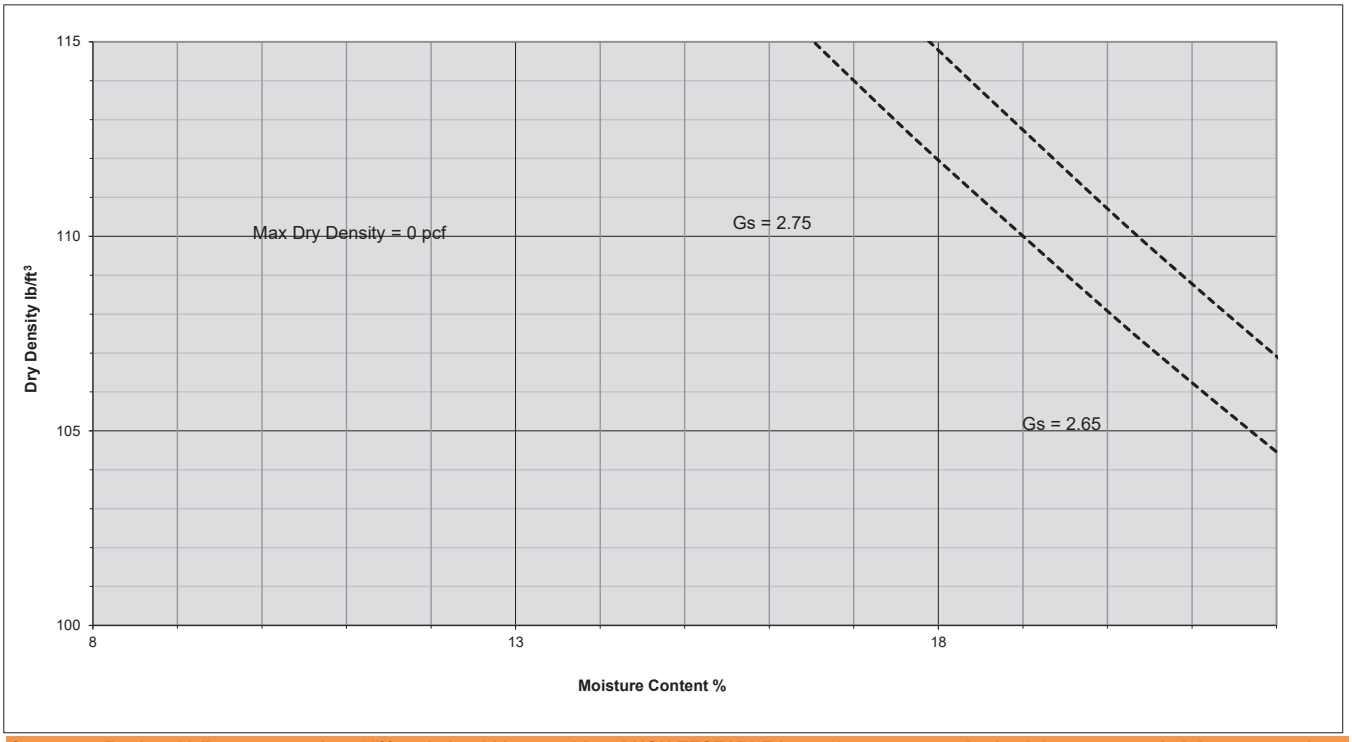
Project Name : Shoreline Phase 4
Project Number : 22SM1432.13
Date: 2/2/2022
Location: Mixed Pile
Depth:
Boring:
Description: Native
As Received Water Content: Not Requested

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	45.8	Percent Passing	54.2
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Cameron Marziale
Entered By: Wes Parkin
Reviewd By: Wes Parkin

Headquarters
50 East 100 South
Heber City, UT 84032

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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: .arge Pile East 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	0.0	0.0	100.0	100	
2.5"	0.0	0.0	100.0	100	
2"	577.7	23.1	76.9	77	
1 1/2"	0.0	0.0	76.9	77	
1"	468.0	18.7	58.2	58	
3/4"	168.3	6.7	51.4	51	
5/8"	0.0	0.0	51.4	51	
1/2"	203.1	8.1	43.3	43	
3/8"	79.3	3.2	40.1	40	
#4	193.3	7.7	32.4	32	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	154.1	6.2	26.2	26	
#10	25.5	1.0	25.2	25	
#16	105.7	4.2	21.0	21	
#20	0.0	0.0	21.0	21	
#30	0.0	0.0	21.0	21	
#40	145.4	5.8	15.2	15	
#50	11.8	0.5	14.7	15	
#60		0.0	14.7	15	
#70		0.0	14.7	15	
#80		0.0	14.7	15	
#100	52.5	2.1	12.6	13	
#200	16.6	0.7	11.9	11.9	
-#201	3.2				
Total	2204.5				

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	2499.9
Washed Weight of Sample ©	2204.5
% Passing #200 ((B-C/B))*100	0.11816
% Passing #200 Sieve	**11.8%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	31	16
Plastic Index	16	
ASTM Classification*	**GP-GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	2616.9
Dry Wt.	2499.9
H2O Wt.	117.0
H2O %	4.7%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

**ASTM Soil Classification: POORLY-GRADED GRAVEL with CLAY (GP-GC)*

Headquarters
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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: 2 West Pile West Side 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	0.0	0.0	100.0	100	
2.5"	742.0	22.7	77.3	77	
2"	203.0	6.2	71.0	71	
1 1/2"	263.0	8.1	63.0	63	
1"	84.0	2.6	60.4	60	
3/4"	106.5	3.3	57.1	57	
5/8"	0.0	0.0	57.1	57	
1/2"	115.7	3.5	53.6	54	
3/8"	76.3	2.3	51.3	51	
#4	178.0	5.5	45.8	46	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	131.4	4.0	41.8	42	
#10	30.4	0.9	40.8	41	
#16	77.8	2.4	38.5	38	
#20	0.0	0.0	38.5	38	
#30	0.0	0.0	38.5	38	
#40	134.1	4.1	34.3	34	
#50	54.8	1.7	32.7	33	
#60		0.0	32.7	33	
#70		0.0	32.7	33	
#80		0.0	32.7	33	
#100	238.3	7.3	25.4	25	
#200	163.2	5.0	20.4	20.4	
-#201	14.6				
Total	2613.1				

**ASTM Soil Classification: CLAYEY GRAVEL WITH SAND (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	3262.7
Washed Weight of Sample ©	2612.6
% Passing #200 ((B-C/B))*100	0.19925
% Passing #200 Sieve	**19.9%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	34	12
Plastic Index	22	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	3501.1
Dry Wt.	3262.7
H2O Wt.	238.4
H2O %	7.3%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

Headquarters
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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: Native Small East 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	799.0	37.3	62.7	63	
2.5"	0.0	0.0	62.7	63	
2"	0.0	0.0	62.7	63	
1 1/2"	0.0	0.0	62.7	63	
1"	86.5	4.0	58.6	59	
3/4"	56.1	2.6	56.0	56	
5/8"	0.0	0.0	56.0	56	
1/2"	69.7	3.3	52.8	53	
3/8"	75.6	3.5	49.2	49	
#4	126.1	5.9	43.3	43	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	97.8	4.6	38.8	39	
#10	22.9	1.1	37.7	38	
#16	59.3	2.8	34.9	35	
#20	0.0	0.0	34.9	35	
#30	0.0	0.0	34.9	35	
#40	108.0	5.0	29.9	30	
#50	33.0	1.5	28.3	28	
#60		0.0	28.3	28	
#70		0.0	28.3	28	
#80		0.0	28.3	28	
#100	99.0	4.6	23.7	24	
#200	76.1	3.6	20.2	20.2	
-#201	9.6				
Total	1718.7				

**ASTM Soil Classification: CLAYEY GRAVEL WITH SAND (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	2140.7
Washed Weight of Sample ©	1718.5
% Passing #200 ((B-C/B))*100	0.19723
% Passing #200 Sieve	**19.7%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	35	16
Plastic Index	18	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	2283.4
Dry Wt.	2140.7
H2O Wt.	142.7
H2O %	6.7%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

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ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Larger West Pile
Boring:
Description: Native
As Received Water Content: Not Requested

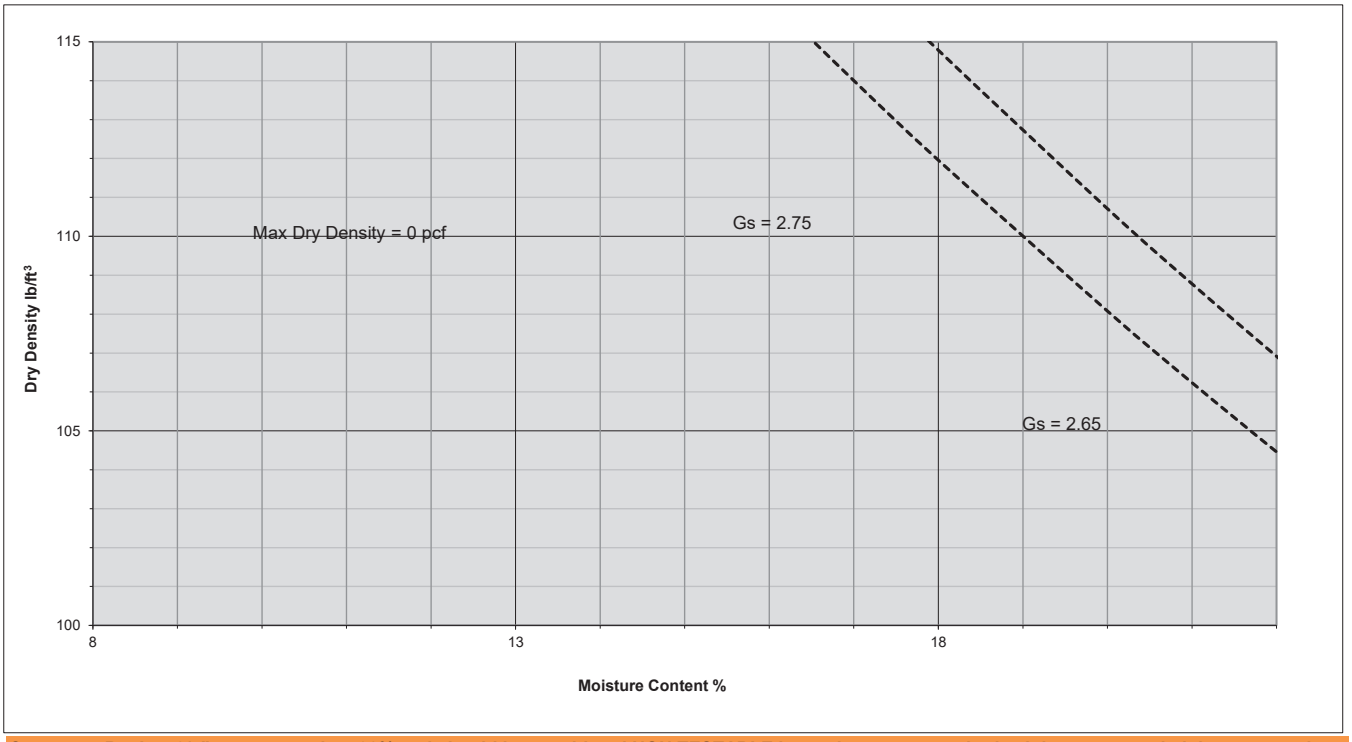
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	53.5	Percent Passing	46.5
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Nick Sorge
Entered By: Spencer Searcy
Reviewd By: Wes Parkin

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ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Larger West Pile West Side to
Boring:
Description: Native
As Received Water Content: Not Requested

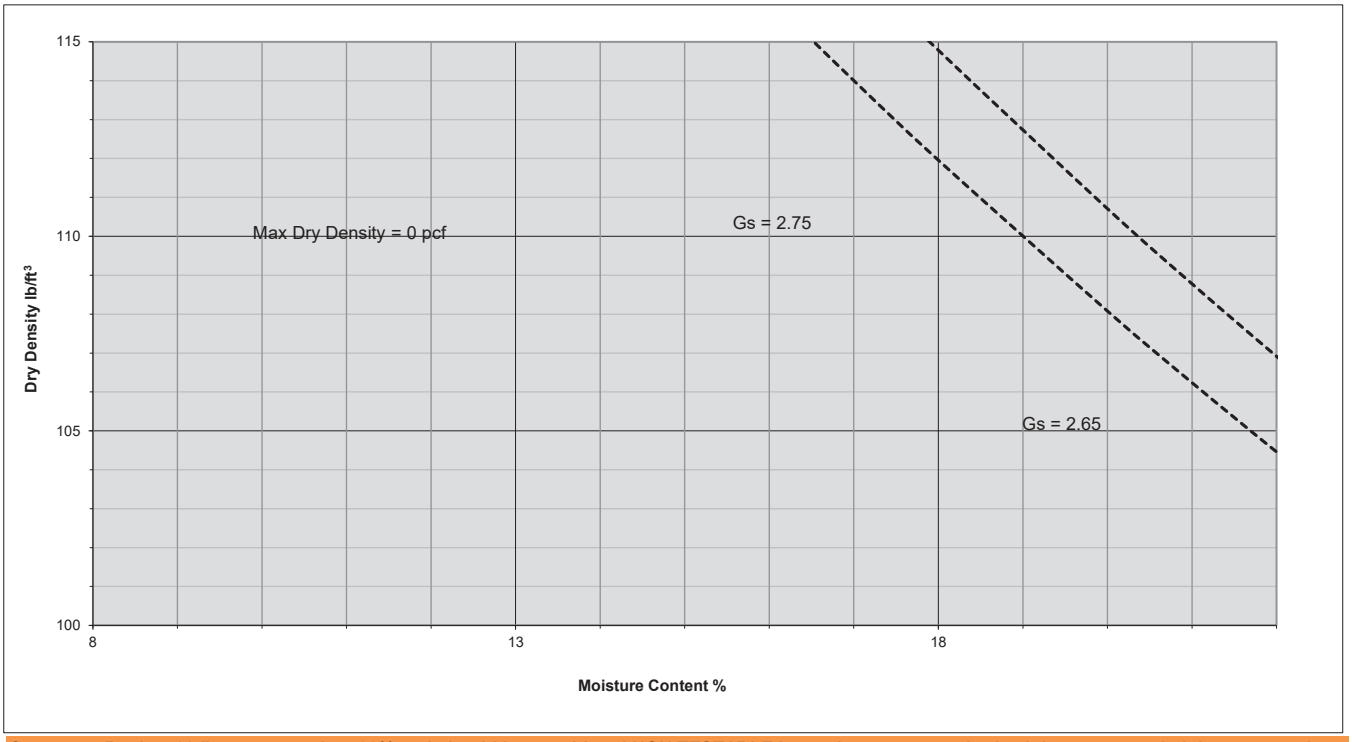
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	43.5	Percent Passing	56.5
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

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ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Smaller East Pile
Boring:
Description: Native
As Received Water Content: Not Requested

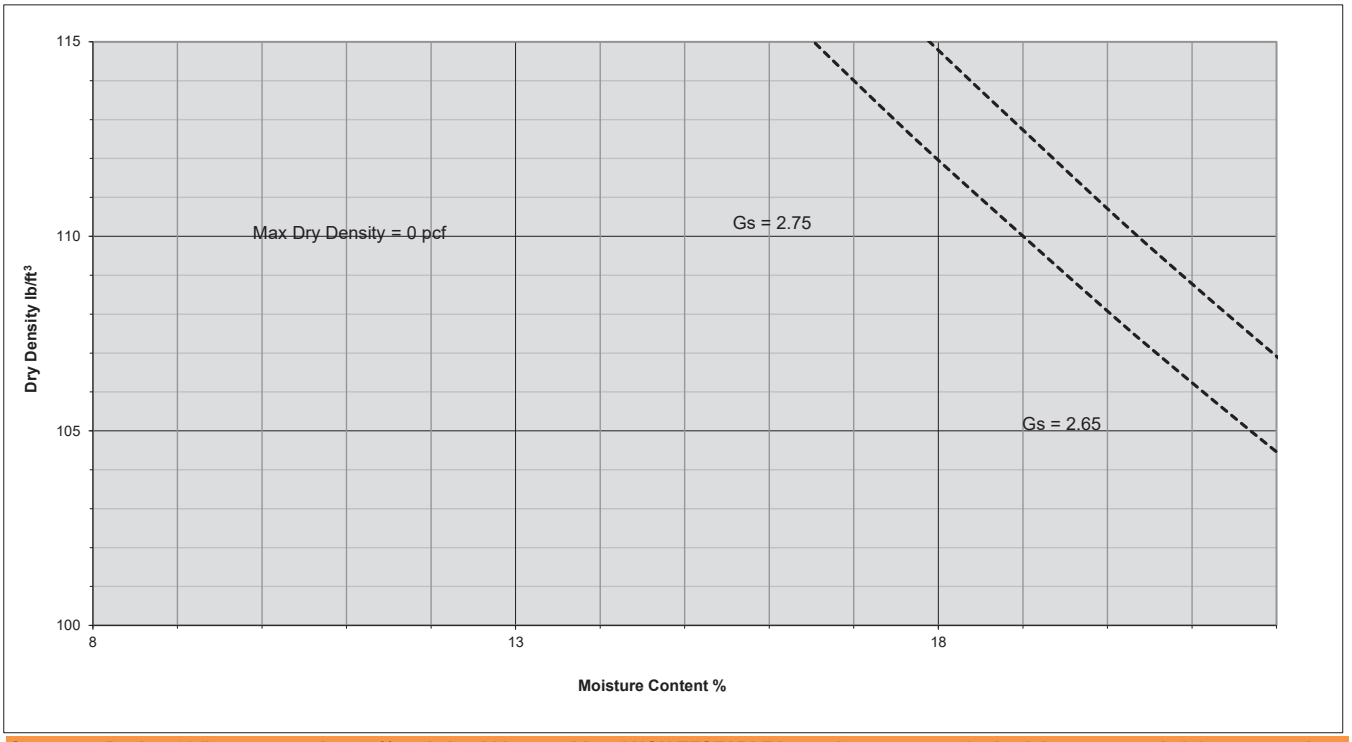
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	41.8	Percent Passing	58.2
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

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Reviewd By: Wes Parkin

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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : February 2, 2022
Date Tested : February 2, 2022
Time :
Sample: Mixed Pile 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	1210.2	33.4	66.6	67	
2.5"	390.7	10.8	55.8	56	
2"	163.2	4.5	51.3	51	
1 1/2"	0.0	0.0	51.3	51	
1"	401.3	11.1	40.3	40	
3/4"	60.2	1.7	38.6	39	
5/8"	0.0	0.0	38.6	39	
1/2"	159.1	4.4	34.2	34	
3/8"	54.6	1.5	32.7	33	
#4	149.1	4.1	28.6	29	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	115.9	3.2	25.4	25	
#10	23.0	0.6	24.8	25	
#16	68.9	1.9	22.9	23	
#20	0.0	0.0	22.9	23	
#30	0.0	0.0	22.9	23	
#40	114.9	3.2	19.7	20	
#50	30.8	0.8	18.9	19	
#60		0.0	18.9	19	
#70		0.0	18.9	19	
#80		0.0	18.9	19	
#100	92.4	2.5	16.3	16	
#200	83.6	2.3	14.0	14.0	
-#201	14.4				
Total	3132.3				

**ASTM Soil Classification: CLAYEY GRAVEL (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	3625.9
Washed Weight of Sample ©	3132.5
% Passing #200 ((B-C/B))*100	0.13608
% Passing #200 Sieve	**13.6%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	30	18
Plastic Index	12	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	3864.2
Dry Wt.	3625.9
H2O Wt.	238.3
H2O %	6.6%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

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ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shoreline Phase 4
Project Number : 22SM1432.13
Location: Mixed Pile
Boring:
Description: Native
As Received Water Content: Not Requested

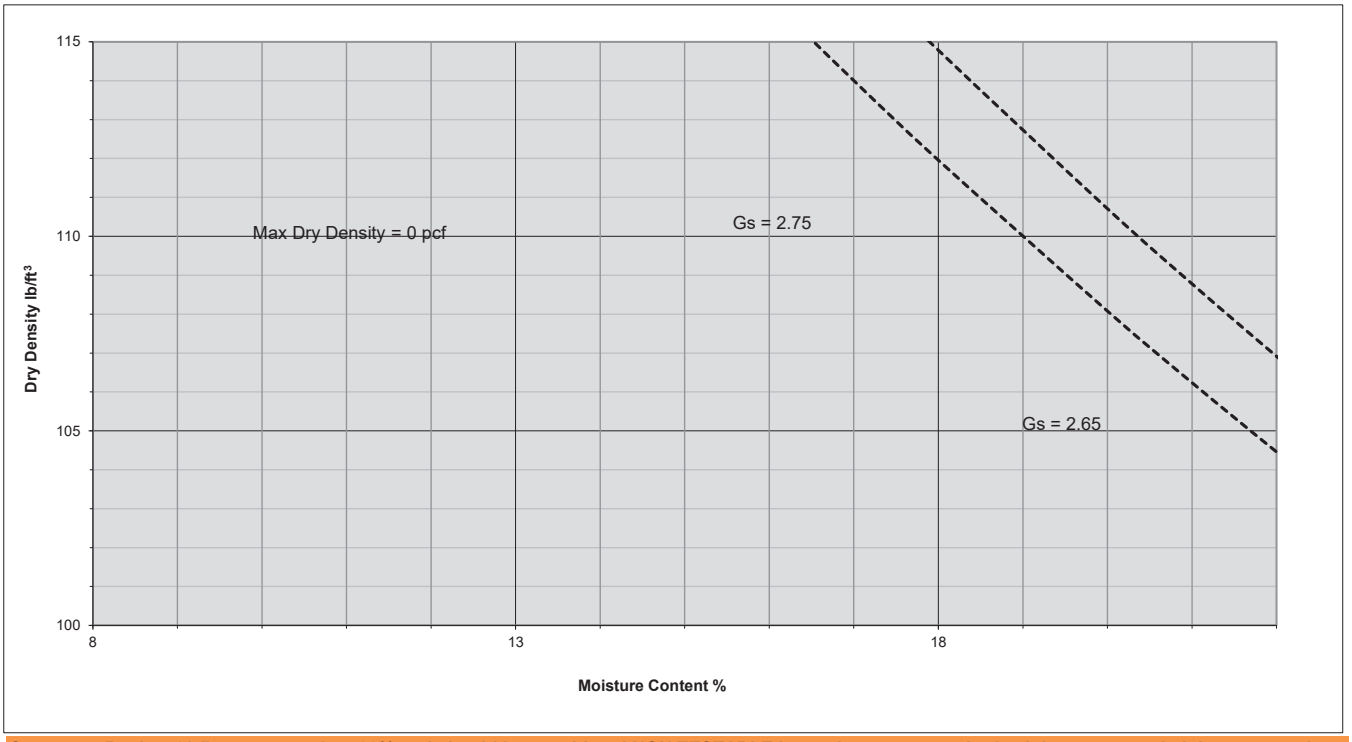
Date: 2/2/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	45.8	Percent Passing	54.2
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Cameron Marziale
Entered By: Wes Parkin
Reviewd By: Wes Parkin

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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: .arge Pile East 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	0.0	0.0	100.0	100	
2.5"	0.0	0.0	100.0	100	
2"	577.7	23.1	76.9	77	
1 1/2"	0.0	0.0	76.9	77	
1"	468.0	18.7	58.2	58	
3/4"	168.3	6.7	51.4	51	
5/8"	0.0	0.0	51.4	51	
1/2"	203.1	8.1	43.3	43	
3/8"	79.3	3.2	40.1	40	
#4	193.3	7.7	32.4	32	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	154.1	6.2	26.2	26	
#10	25.5	1.0	25.2	25	
#16	105.7	4.2	21.0	21	
#20	0.0	0.0	21.0	21	
#30	0.0	0.0	21.0	21	
#40	145.4	5.8	15.2	15	
#50	11.8	0.5	14.7	15	
#60		0.0	14.7	15	
#70		0.0	14.7	15	
#80		0.0	14.7	15	
#100	52.5	2.1	12.6	13	
#200	16.6	0.7	11.9	11.9	
-#201	3.2				
Total	2204.5				

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	2499.9
Washed Weight of Sample ©	2204.5
% Passing #200 ((B-C/B))*100	0.11816
% Passing #200 Sieve	**11.8%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	31	16
Plastic Index	16	
ASTM Classification*	**GP-GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	2616.9
Dry Wt.	2499.9
H2O Wt.	117.0
H2O %	4.7%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

**ASTM Soil Classification: POORLY-GRADED GRAVEL with CLAY (GP-GC)*

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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: 2 West Pile West Side 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	0.0	0.0	100.0	100	
2.5"	742.0	22.7	77.3	77	
2"	203.0	6.2	71.0	71	
1 1/2"	263.0	8.1	63.0	63	
1"	84.0	2.6	60.4	60	
3/4"	106.5	3.3	57.1	57	
5/8"	0.0	0.0	57.1	57	
1/2"	115.7	3.5	53.6	54	
3/8"	76.3	2.3	51.3	51	
#4	178.0	5.5	45.8	46	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	131.4	4.0	41.8	42	
#10	30.4	0.9	40.8	41	
#16	77.8	2.4	38.5	38	
#20	0.0	0.0	38.5	38	
#30	0.0	0.0	38.5	38	
#40	134.1	4.1	34.3	34	
#50	54.8	1.7	32.7	33	
#60		0.0	32.7	33	
#70		0.0	32.7	33	
#80		0.0	32.7	33	
#100	238.3	7.3	25.4	25	
#200	163.2	5.0	20.4	20.4	
-#201	14.6				
Total	2613.1				

**ASTM Soil Classification: CLAYEY GRAVEL WITH SAND (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	3262.7
Washed Weight of Sample ©	2612.6
% Passing #200 ((B-C/B))*100	0.19925
% Passing #200 Sieve	**19.9%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	34	12
Plastic Index	22	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	3501.1
Dry Wt.	3262.7
H2O Wt.	238.4
H2O %	7.3%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

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MATERIAL ANALYSIS DATA SHEET

Project: Shoreline Phase 4
Location: Hideout
Material Type: Native
Epic Job No:22SM1432.12

Date Sampled : March 7, 2022
Date Tested : March 10, 2022
Time :
Sample: Native Small East 0 Feet

Coarse Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
3"	799.0	37.3	62.7	63	
2.5"	0.0	0.0	62.7	63	
2"	0.0	0.0	62.7	63	
1 1/2"	0.0	0.0	62.7	63	
1"	86.5	4.0	58.6	59	
3/4"	56.1	2.6	56.0	56	
5/8"	0.0	0.0	56.0	56	
1/2"	69.7	3.3	52.8	53	
3/8"	75.6	3.5	49.2	49	
#4	126.1	5.9	43.3	43	
Total					

Fine Gradation (AASHTO T27)					
Sieve Size	Weight Ret.	% Ret.	% Total Passing	Final Report	Specs.
#4					
#8	97.8	4.6	38.8	39	
#10	22.9	1.1	37.7	38	
#16	59.3	2.8	34.9	35	
#20	0.0	0.0	34.9	35	
#30	0.0	0.0	34.9	35	
#40	108.0	5.0	29.9	30	
#50	33.0	1.5	28.3	28	
#60		0.0	28.3	28	
#70		0.0	28.3	28	
#80		0.0	28.3	28	
#100	99.0	4.6	23.7	24	
#200	76.1	3.6	20.2	20.2	
-#201	9.6				
Total	1718.7				

**ASTM Soil Classification: CLAYEY GRAVEL WITH SAND (GC)*

% Passing #200 Sieve by Washing (AASHTO T11)	
Dry Weight of Sample (B)	2140.7
Washed Weight of Sample ©	1718.5
% Passing #200 ((B-C/B))*100	0.19723
% Passing #200 Sieve	**19.7%**

ATTERBERG LIMIT (AASHTO T89, T90)		
Liquid Limit / Plastic Limit	35	16
Plastic Index	18	
ASTM Classification*	**GC**	
AASHTO Classification	**A-2-6**	

MOISTURE DATA (T225) AASHTO	
Wet Wt.	2283.4
Dry Wt.	2140.7
H2O Wt.	142.7
H2O %	6.7%

L.A. Wear Test (AASHTO T96)	
Weight of Sample (A)	
Wt. Ret. On #12 After Test (B)	
% of Wear = (A-B)/A * 100	
L.A. Wear	%Wear

UNIT WEIGHT TEST (AASHTO T19)		
Rodded	Jigging	Loose
UNIT WEIGHT :		lb/ft^3

% Fracured Faces TP61 (ASTM D5821)	
Mass of fracured particals (F)	
Mass of non-fracured particals (N)	
Number of fracured faces	
P= [F/(F+N)] X 100	

Headquarters
50 East 100 South
Heber City, UT 84032

Tele: (435) 654 6600
Fax: (435) 654 6622

ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Larger West Pile
Boring:
Description: Native
As Received Water Content: Not Requested

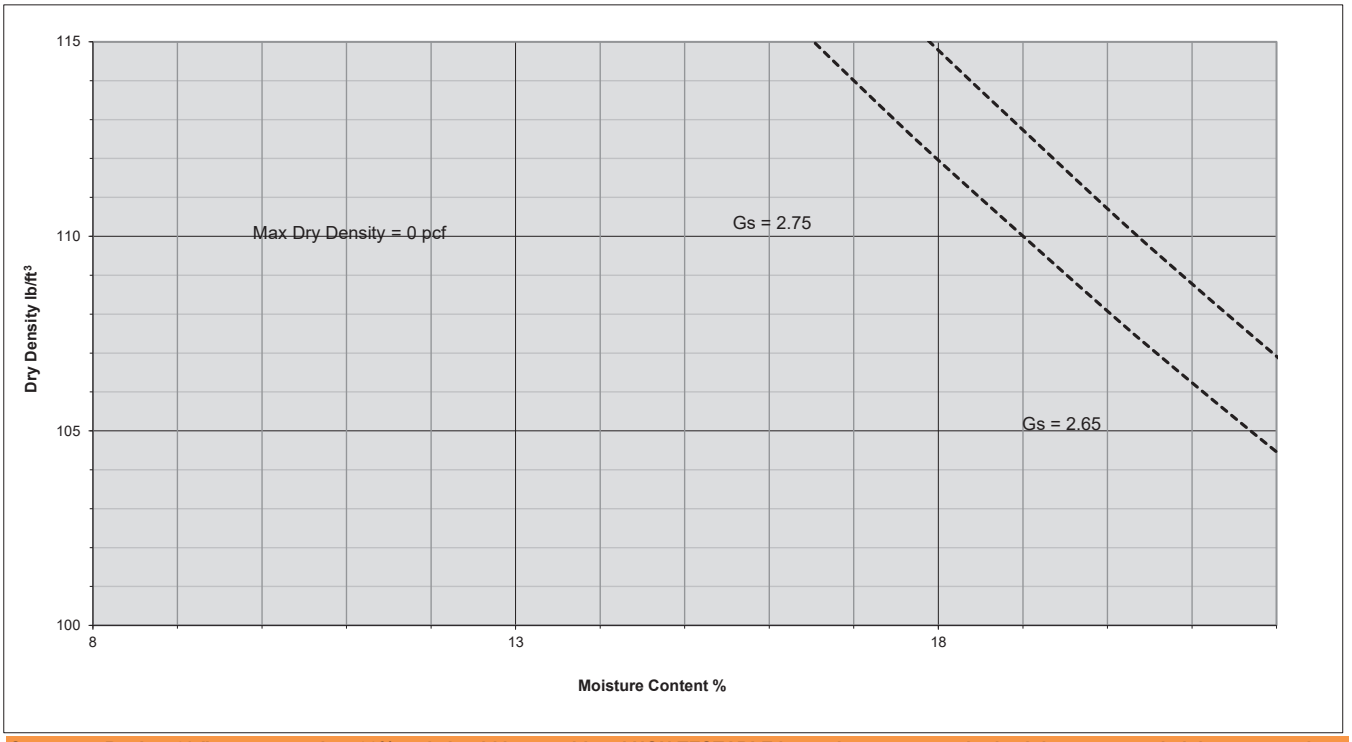
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	53.5	Percent Passing	46.5
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Nick Sorge
Entered By: Spencer Searcy
Reviewd By: Wes Parkin

Headquarters
50 East 100 South
Heber City, UT 84032

Tele: (435) 654 6600
Fax: (435) 654 6622

ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

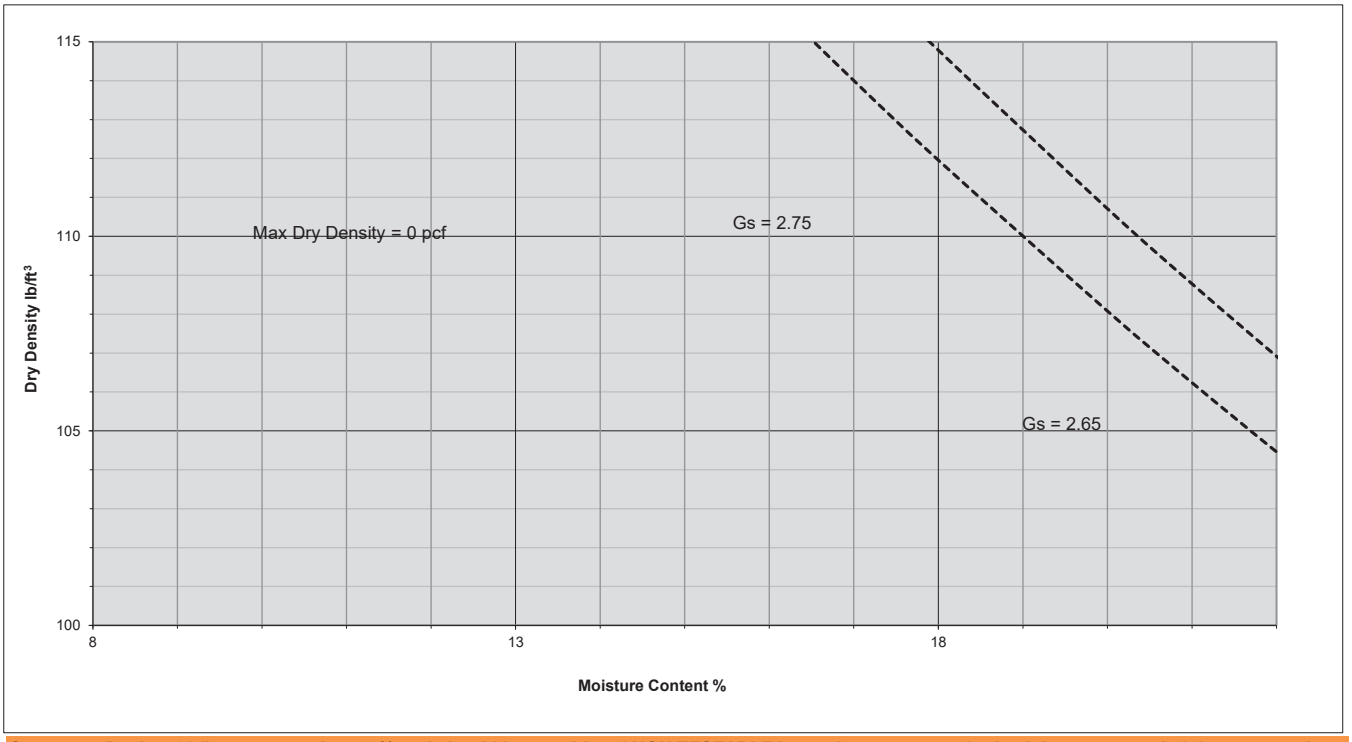
Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Larger West Pile West Side to
Boring:
Description: Native
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

As Received Water Content: Not Requested
Method of Compaction: ASTM D1557 C
Preparation Method: Wet
Rammer: Manual
Split: No
Sieve No. 3/4"
Percent Retained: 43.5
Percent Passing 56.5
Specific Gravity: 2.65 Assumed
Rock Correction: Yes

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Nick Sorge
Entered By: Spencer Searcy
Reviewd By: Wes Parkin

Headquarters
50 East 100 South
Heber City, UT 84032

Tele: (435) 654 6600
Fax: (435) 654 6622

ASTM D698/1557 Standard Tests Methods for Laboratory Compaction Characteristics

Project Name : Shore Line Phase 4
Project Number : 22SM1432.12
Location: Smaller East Pile
Boring:
Description: Native
As Received Water Content: Not Requested

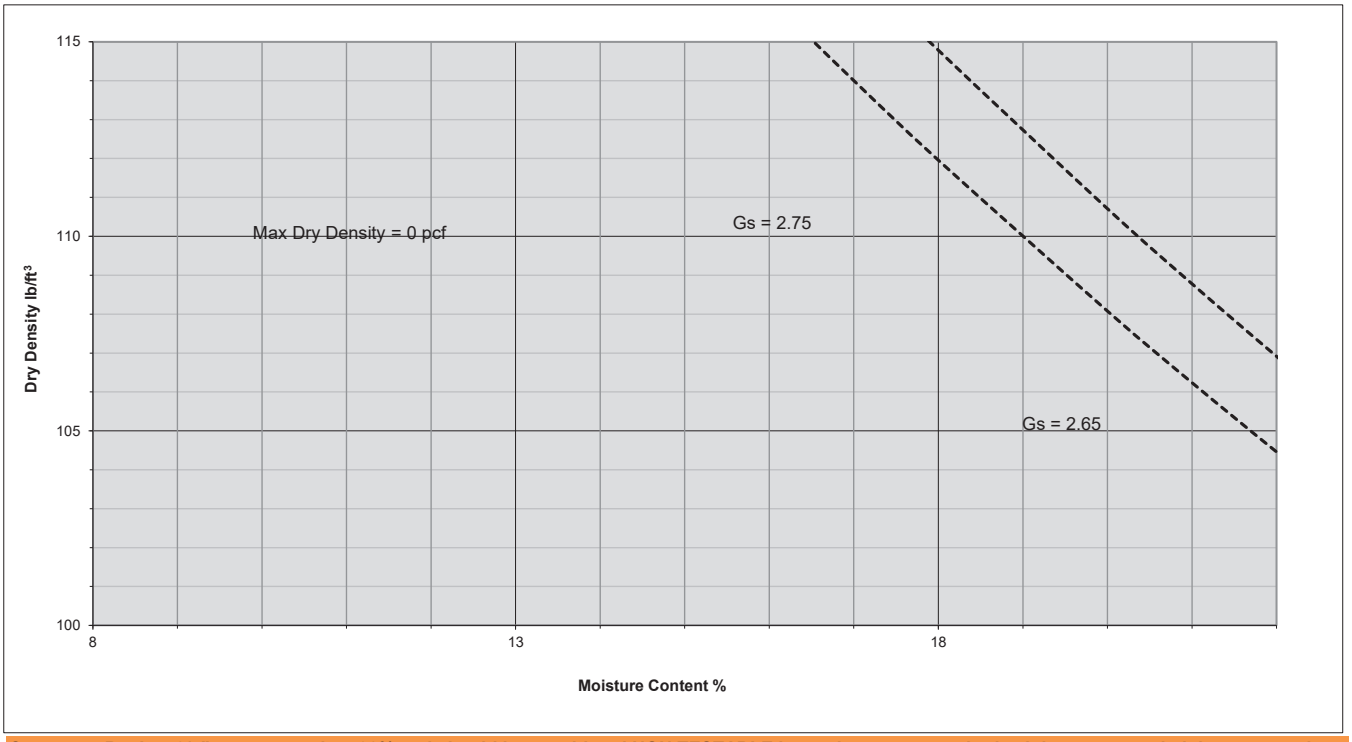
Date: 3/7/2022
Depth:

Test No.	1	2	3	4	5	6	7
Water Added							
Cylinder and wet Soil Wt. (g)							
Cylinder Wt. (g)							
Wet Density (lb/ft^3)							
Container No.							
Wet Soil Weight (g)							
Dry Soil Weight (g)							
Water Wt. (g)							
Container Wt. (g)							
Moisture Content (%)							
Dry Density (lb/ft^3)							

Method of Compaction:	ASTM D1557 C		
Preparation Method:	Wet		
Rammer:	Manual		
Split	No	Sieve No.	3/4"
Percent Retained:	41.8	Percent Passing	58.2
Specific Gravity:	2.65	Assumed	
Rock Correction:	Yes		

Not Enough Fines In The Material To Test.

Optimum Water Conent	~~0.0~~	%	
Maximum Dry Density	~~0.0~~	pcf	
Corrected Dry Density	**~~0.0~~**	%	**NT**
Corrected Moisture Content	**~~0.0~~**	pcf	**NT**



Comment: Rocks >3/4" are greater than 30% and should be considered NON TESTABLE by nuclear guage methods. It is recommended that compaction and moisture be verified through VISUAL INSPECTION.

Performed By: Nick Sorge
Entered By: Spencer Searcy
Reviewd By: Wes Parkin

Daily Construction Observation Report

Report Date 6/8/2021
Inspection Date 4/1/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Started on the 3rd lift about 1'-1.5' lifts now that the soil had started to dry out. One dump truck bringing in soil and one bulldozer flattening out the dirt piles to be graded and rolled. Rolled lift near the Southwest entrance to the canyon. One excavator filling the dump truck from the large pile.

Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65
Inspector Nick Sorge
Digital Signature By User Login

Manager Mike Jensen
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/1E51BF71-AB7A-42BC-F539-4F417B73ADF4
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 4/1 NS

Daily Construction Observation Report

Report Date 6/29/2021
Inspection Date 4/6/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Rocky Canyon
Location(s) Rocky Canyon
Remarks About halfway done with the 3rd lift. 1'-1.5' lift. Two dump trucks bringing in soil to finish 3rd lift while bulldozer pushes dump truck piles to level them and rolled with sheepsfoot roller.

Discrepancies

Weather Clear
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Mike Jensen
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/FE2B1F2A-F295-434C-BE3D-C8FE88FFF876
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 4/6 NS

Daily Construction Observation Report

Report Date 6/8/2021
Inspection Date 4/8/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Louder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Canyon Lifts
Location(s)
Remarks On the south east end of the canyon thats being backfilled, An excavator with a harrow on the back spread materials. Two dump trucks took materials from the pile to the north east of the canyon, which they were loaded with a cat backhoe. The dump truck would go around the material pile in a loop get filled up and dump materials for the excavator to level out. The dump trucks dumped the material a little bit further to the north east every load. The dump trucks are both cat 6 wheel dump trucks with sunroc logos on the sides of the cab.

Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65
Inspector Cameron Marziale
Digital Signature By User Login

Manager Mike Jensen
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/509B102C-41D5-40D9-1113-F0ABBA754DF8
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 4/8 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/30/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Sunroc have started a new lift near the east end not the far east maybe 100 - 150 feet west of the far east side. The dump truck did its rounds to the location and dumped the material and got more material from the backhoe. The back hoe has stayed in the general same area the entire time. The south side of the material pile which is at most 150 yards north of the project. Material was placed in small lifts and set for the sheeps foot to compact it.

Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/3D5DB220-4D1D-47D5-DABA-48D343CCEA37
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 3/30 CM

Daily Construction Observation Report

Report Date 6/8/2021
Inspection Date 4/13/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Louder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected canyon lifts
Location(s)
Remarks Two 10 wheel white Sunroc dump trucks trucked in material from an excess pile on phase 2. A new sheeps foot roller is in use. Ken told me that the old compactor broke and this one is slightly smaller. The material has been spread throughout the majority of this lift already, near the road leading up to the canyon is what has been left to finish. The dump trucks dumped their material there and an excavator spread it.

Discrepancies

Weather Overcast
Temperature Cool 45 - 50
Inspector Cameron Marziale
Digital Signature By User Login

Manager Mike Jensen
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/6C4ECA85-52B6-47F5-6540-5963952FCA61
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 4/13 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/15/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks The workers were finishing up upon arrival. They were spreading a fluff layer meant to help with possible frost over night and was a protective layer for what had already been compacted. Further inspections will resume tomorrow.

Discrepancies

Weather Clear
Temperature Cool 45 - 50
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/EDDCA3AC-28E0-47EB-A608-6201F8706024
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/15 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/16/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Compacted the 2nd 6" lift over in the rocky canyon area in the morning and compacted with bulldozers that had sheepsfoot wheels. They were doing 6" lifts because the material was pretty wet. They were bringing dirt in from the large pile with dump trucks and leaving in piles so they wouldn't freeze overnight and they could lay out and roll the next lift in the morning.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/C837F10F-FF6F-43E6-53A7-9AA5C721A2F5
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/16 NS

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/17/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Compacted the 3rd 6" lift over in the rocky canyon area in the morning and compacted with bulldozers that had sheepsfoot wheels. They were doing 6" lifts because the material was pretty wet. They were bringing dirt in from the large pile with dump trucks and leaving in piles so they wouldn't freeze overnight and they could lay out and roll the next lift in the morning.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/0392CFBF-EDAF-45C9-C303-B62B9FA7C9DA
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/17 NS

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/18/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Rolled 4th 6" lift with bulldozers with sheepsfoot wheels from previous day and piled up dirt for the next lift in the morning. They were understaffed so there was only two dump trucks running.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/765D45A3-7748-4AEC-B26D-3A2DF762B28D
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/18 NS

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/19/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks When I showed up there was no one working but it appeared that they had rolled the fifth 6" lift and had piled up dirt for another lift.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/96EA4061-24C1-476F-505D-37AE7614314C
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/19 NS

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/22/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks They worked near the west end of the lift a cat dozer took material from a pile a few hundred feet north and trucked it down to an excavator that spread it out. Ken had informed me that previous to my arrival the excavator had been clearing the mud away pushing it offsite to the south until it can become dry then started spreading the dry material.

Discrepancies

Weather Clear
Temperature Cold 32 - 45
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/1473123C-FF7A-489F-9DA9-461DF713B8D6
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/22 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/23/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Finished up on the west end of the lift, worked on clearing the trail of the mud making it easier for the dump truck to get onto the site. They spread some of the dry material and leveled it on the trail as well. They also finished the lift near the trail head and compacted it as well. All lift were less than a foot in thickness, and compacted until no more deflection was visible.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/79145FC8-2FF3-436E-5B82-3212BF92ED50
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/23 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/25/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks About a hundred yards east of the entrance a dump truck made rounds dumping material being loaded by a cat back hoe to the north of the project. The trail loops around the hill, the material comes from the dump truck, drives around the loop, gets loaded, drives down to the site and dumps the material, then the excavator spreads it, finally the dump truck does it again. The big sheeps foot compactor with the large sheeps foot rollers compacted the material once spread by the excavator and itself.

Discrepancies

Weather Partly Cloudy
Temperature Cool 45 - 50
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/3AB6EC25-979F-44AC-984D-88BD730C5138
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/25 CM

Daily Construction Observation Report

Report Date 6/8/2021
Inspection Date 4/1/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Started on the 3rd lift about 1'-1.5' lifts now that the soil had started to dry out. One dump truck bringing in soil and one bulldozer flattening out the dirt piles to be graded and rolled. Rolled lift near the Southwest entrance to the canyon. One excavator filling the dump truck from the large pile.

Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65
Inspector Nick Sorge
Digital Signature By User Login

Manager Mike Jensen
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/1E51BF71-AB7A-42BC-F539-4F417B73ADF4
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 4/1 NS

Daily Construction Observation Report

Report Date 6/29/2021
Inspection Date 4/6/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Rocky Canyon
Location(s) Rocky Canyon
Remarks About halfway done with the 3rd lift. 1'-1.5' lift. Two dump trucks bringing in soil to finish 3rd lift while bulldozer pushes dump truck piles to level them and rolled with sheepsfoot roller.

Discrepancies

Weather Clear
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Mike Jensen
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/FE2B1F2A-F295-434C-BE3D-C8FE88FFF876
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 4/6 NS

Daily Construction Observation Report

Report Date 6/8/2021
Inspection Date 4/8/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Louder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Canyon Lifts
Location(s)
Remarks On the south east end of the canyon thats being backfilled, An excavator with a harrow on the back spread materials. Two dump trucks took materials from the pile to the north east of the canyon, which they were loaded with a cat backhoe. The dump truck would go around the material pile in a loop get filled up and dump materials for the excavator to level out. The dump trucks dumped the material a little bit further to the north east every load. The dump trucks are both cat 6 wheel dump trucks with sunroc logos on the sides of the cab.

Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65
Inspector Cameron Marziale
Digital Signature By User Login

Manager Mike Jensen
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/509B102C-41D5-40D9-1113-F0ABBA754DF8
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 4/8 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/30/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Sunroc have started a new lift near the east end not the far east maybe 100 - 150 feet west of the far east side. The dump truck did its rounds to the location and dumped the material and got more material from the backhoe. The back hoe has stayed in the general same area the entire time. The south side of the material pile which is at most 150 yards north of the project. Material was placed in small lifts and set for the sheeps foot to compact it.

Discrepancies

Weather Partly Cloudy
Temperature Mild 50 - 65
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/3D5DB220-4D1D-47D5-DABA-48D343CCEA37
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 3/30 CM

Daily Construction Observation Report

Report Date 6/8/2021
Inspection Date 4/13/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Louder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected canyon lifts
Location(s)
Remarks Two 10 wheel white Sunroc dump trucks trucked in material from an excess pile on phase 2. A new sheeps foot roller is in use. Ken told me that the old compactor broke and this one is slightly smaller. The material has been spread throughout the majority of this lift already, near the road leading up to the canyon is what has been left to finish. The dump trucks dumped their material there and an excavator spread it.

Discrepancies

Weather Overcast
Temperature Cool 45 - 50
Inspector Cameron Marziale
Digital Signature By User Login

Manager Mike Jensen
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/6C4ECA85-52B6-47F5-6540-5963952FCA61
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / 21SM1432.10 DailyRpt 4/13 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/15/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks The workers were finishing up upon arrival. They were spreading a fluff layer meant to help with possible frost over night and was a protective layer for what had already been compacted. Further inspections will resume tomorrow.

Discrepancies

Weather Clear
Temperature Cool 45 - 50
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/EDDCA3AC-28E0-47EB-A608-6201F8706024
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/15 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/16/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Compacted the 2nd 6" lift over in the rocky canyon area in the morning and compacted with bulldozers that had sheepsfoot wheels. They were doing 6" lifts because the material was pretty wet. They were bringing dirt in from the large pile with dump trucks and leaving in piles so they wouldn't freeze overnight and they could lay out and roll the next lift in the morning.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/C837F10F-FF6F-43E6-53A7-9AA5C721A2F5
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/16 NS

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/17/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Compacted the 3rd 6" lift over in the rocky canyon area in the morning and compacted with bulldozers that had sheepsfoot wheels. They were doing 6" lifts because the material was pretty wet. They were bringing dirt in from the large pile with dump trucks and leaving in piles so they wouldn't freeze overnight and they could lay out and roll the next lift in the morning.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/0392CFBF-EDAF-45C9-C303-B62B9FA7C9DA
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/17 NS

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/18/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Rolled 4th 6" lift with bulldozers with sheepsfoot wheels from previous day and piled up dirt for the next lift in the morning. They were understaffed so there was only two dump trucks running.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/765D45A3-7748-4AEC-B26D-3A2DF762B28D
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/18 NS

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/19/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks When I showed up there was no one working but it appeared that they had rolled the fifth 6" lift and had piled up dirt for another lift.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Nick Sorge
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/96EA4061-24C1-476F-505D-37AE7614314C
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/19 NS

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/22/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks They worked near the west end of the lift a cat dozer took material from a pile a few hundred feet north and trucked it down to an excavator that spread it out. Ken had informed me that previous to my arrival the excavator had been clearing the mud away pushing it offsite to the south until it can become dry then started spreading the dry material.

Discrepancies

Weather Clear
Temperature Cold 32 - 45
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/1473123C-FF7A-489F-9DA9-461DF713B8D6
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/22 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/23/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks Finished up on the west end of the lift, worked on clearing the trail of the mud making it easier for the dump truck to get onto the site. They spread some of the dry material and leveled it on the trail as well. They also finished the lift near the trail head and compacted it as well. All lift were less than a foot in thickness, and compacted until no more deflection was visible.

Discrepancies

Weather Partly Cloudy
Temperature Cold 32 - 45
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/79145FC8-2FF3-436E-5B82-3212BF92ED50
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/23 CM

Daily Construction Observation Report

Report Date 4/1/2021
Inspection Date 3/25/2021
Project No 21SM1432.10
Client Reference No
Crew Foreman Ken Lowder
Contractor Sunroc

Client GCD
Address

Project Rocky Canyon
Pay Item
Item Inspected Fill Area
Location(s) Rocky Canyon Section
Remarks About a hundred yards east of the entrance a dump truck made rounds dumping material being loaded by a cat back hoe to the north of the project. The trail loops around the hill, the material comes from the dump truck, drives around the loop, gets loaded, drives down to the site and dumps the material, then the excavator spreads it, finally the dump truck does it again. The big sheeps foot compactor with the large sheeps foot rollers compacted the material once spread by the excavator and itself.

Discrepancies

Weather Partly Cloudy
Temperature Cool 45 - 50
Inspector Cameron Marziale
Digital Signature By User Login

Manager Wes Parkin
Digital Signature By User Login

System Link http://epic.vahalo.com/assignments/3AB6EC25-979F-44AC-984D-88BD730C5138
System Path Rocky Canyon / SOILS - FIELD AND LAB TESTING / DailyRpt 3/25 CM

10860 N. Hideout Trail
Hideout, Utah 84036
435-659-4739

Application #	24-004
Zone	
Tax ID #	
Date Received	05-23-2024
Received By	S. Bolton
Reviewed By	R. Taylor
Date Project Completed	

Subdivision Construction Permit
Application Instructions and Procedure

- **The plan set which you wish to construct must have received prior Preliminary and Final Approval from Town Council. To confirm this, contact the Town Planner, Thomas Eddington (thomas@inplandesign.com).**
- **This permit is necessary to create a subdivision, split a parcel, create a shared driveway, etc. Contact the Town of Hideout Engineer if you have questions. (T-O Engineers, Inc.; 435-315-3168; rtaylor@to-engineers.com).**
- **Please submit digital and hard copies to the Town of Hideout Building Department Administrator (Carol Kusterle; 435-659-6805; carol@hideoututah.gov)**

The following must be submitted with the completed application:

1. Town of Hideout report and approval.
2. Submit an electronic PDF set for construction permit review. If the set resolves any prior conditions of approval and closely matches the plan set approved by Town Council, the Town of Hideout Engineer will stamp the plans and distribute to the applicant and Town Administration as part of the application review process.
3. Provide an electronic copy of the engineer's estimate for review. If approved, the Town of Hideout Engineer will stamp and distribute to the applicant and Town Administration as part of the application review process.
4. Provide SWPPP (Erosion Control and Re-Vegetation Plan) if disturbing more than one acre.
5. Any grading near water ways or in the FEMA Floodplain will require a permit from the Utah Division of Water Rights. Applications are available at http://www.waterrights.utah.gov/strmalt/forms.asp.
6. Any excavation or grading of 1 acre or more requires a permit from the Water Quality Division. Applications are available at https://deq.utah.gov/division-water-quality.
7. Provide a Certificate of Liability Insurance meeting Town standards.
8. If applicable, a SWPPP plan and permit must be obtained from the State DEQ. For disturbance over 1 acre, a CGP permit must be obtained, for less, a CPOD single family residence permit must be obtained.

After the plans have been accepted by the Engineering Department and before the permit is issued, the following must be submitted:

9. No permit will be issued until final approval is granted by the Planning Commission or Planning Staff.
10. A performance bond shall be posted with the Town of Hideout prior to any final approved plat recorded in a principal amount of one hundred percent (100%) of the total estimated cost of any improvement or other performance required by or promised to the Town of Hideout plus 10% contingency as per section 12.12.170C of the Town code and the current fee and rate schedule. The Town may approve partial releases of performance bond prior to final release.
11. A cash warranty bond in the amount of 10% of an approved engineer's estimate is required. The warranty bond will be eligible for reimbursement one year following the date of acceptance of the improvements by the Town of Hideout. The amount to be reimbursed will depend upon a review by the Town of Hideout of the performance and satisfaction of Town code.
12. When impacting traffic, provide a Traffic Control Plan (TCP) in accordance with the Manual of Uniform Traffic Control Devices (MUTCD).
13. Conduct a pre-construction meeting with Planning, Engineering, and Building Departments. No permit will be issued without a pre-construction meeting.
14. Upon completion of work, schedule a final inspection (see form: Final Inspection Checklist) and provide a set of as-built drawings identifying all changes in electronic PDF format.
15. Pay applicable permit fees.

ALL WORK MUST BE COMPLETED AS PER TOWN OF HIDEOUT CODE, JSSD CODE and APWA UTAH

- Town of Hideout Code: https://hideout.municipalcodeonline.com/book?type=ordinances#name=PREFACE
- JSSD: http://cdn.sqhk.co/jordanelle/ChgjcJu/JordanelleSpecialServiceDistrict-DesignStandards,ConstructionSpecifications,andStandardDrawings-1.pdf
- APWA: http://utah.apwa.net/PageDetails/24951

Town of Hideout

10860 No. Hideout Trail, Hideout, Utah 84036
Phone: (435) 659-4739
hideoututah.gov

Revised June 2021

Permit #:	24-004
Permit Date:	05-23-2024
Permit Fee:	waived

Subdivision Construction Permit Application

Applicant Information

Applicant Name: GCD	Phone: 801-420-4333
Address: 3214 N University Ave	Email: glengabler@yahoo.com
Provo, UT	
Project Address: Shoreline Phase 4	**Development Name:** Shoreline Phase 4
Contractor Name: Sunroc	Phone: 801-699-1199
Contractor's License #: 326045-5501	Email: bboshell@sunroc.com
Liability Insurance Carrier: Beehive	Policy #: 917575053
Date Work To Begin: June 2024	**Date of Completion:** TBD

The Applicant shall be the party responsible for the work and to whom all communications are to be directed.

Project Description

•Mass excavation to rough grade for Shoreline Phase 4. This does not allow any surface improvements or installation of underground utilities.
•In accordance with Hideout Municipal Code, 10.08.30 Steep Slope / Significant Grade Change Criteria for Subdivisions:
oThe Applicant shall identify on the site plan any areas where the proposed grade change exceeds 5'-0"; these areas should be minimized to the greatest extent possible.
oThe Applicant shall preserve areas of native vegetation to the greatest extent possible.
oStraight-line terracing of the land is not permitted; grading shall generally follow the existing (prior to any disturbance) natural contours on the site.
•If construction (horizontal or vertical) has not commenced within six (6) months, the site must be revegetated per Town standards (if this date falls within the winter months, revegetation must be completed during the following Spring).

Subdivision Construction Permit Fees and Bonds

SUBDIVISION CONSTRUCTION PERMIT FEE		
Flat Application Fee | Waived by Mayor Rubin	~~$500~~ XXXX	~~$5,000.00~~ XXXXX
BONDING		
Performance Bond: 100% of approved Engineer's Estimate Plus 10% Contingency See Instructions in Note 10.	1.1 X Engineer's Estimate of:	$ NA
At least 10% of the above 110% (Performance Bond + Contingency) must be a Cash Warranty. Should the above be a credit bond, the cash amount due would be:	0.10 X the above cell's resultant value	$ NA
INSPECTION AND QUALITY ASSURANCE REVIEWS FEE		
2.5% of the Engineer's Estimate Reduction approved by Mayor Rubin	2.5% X Engineer's Estimate of: 2.5%	$ $815,663
		Please submit separate checks for each item.

Submittal Requirements

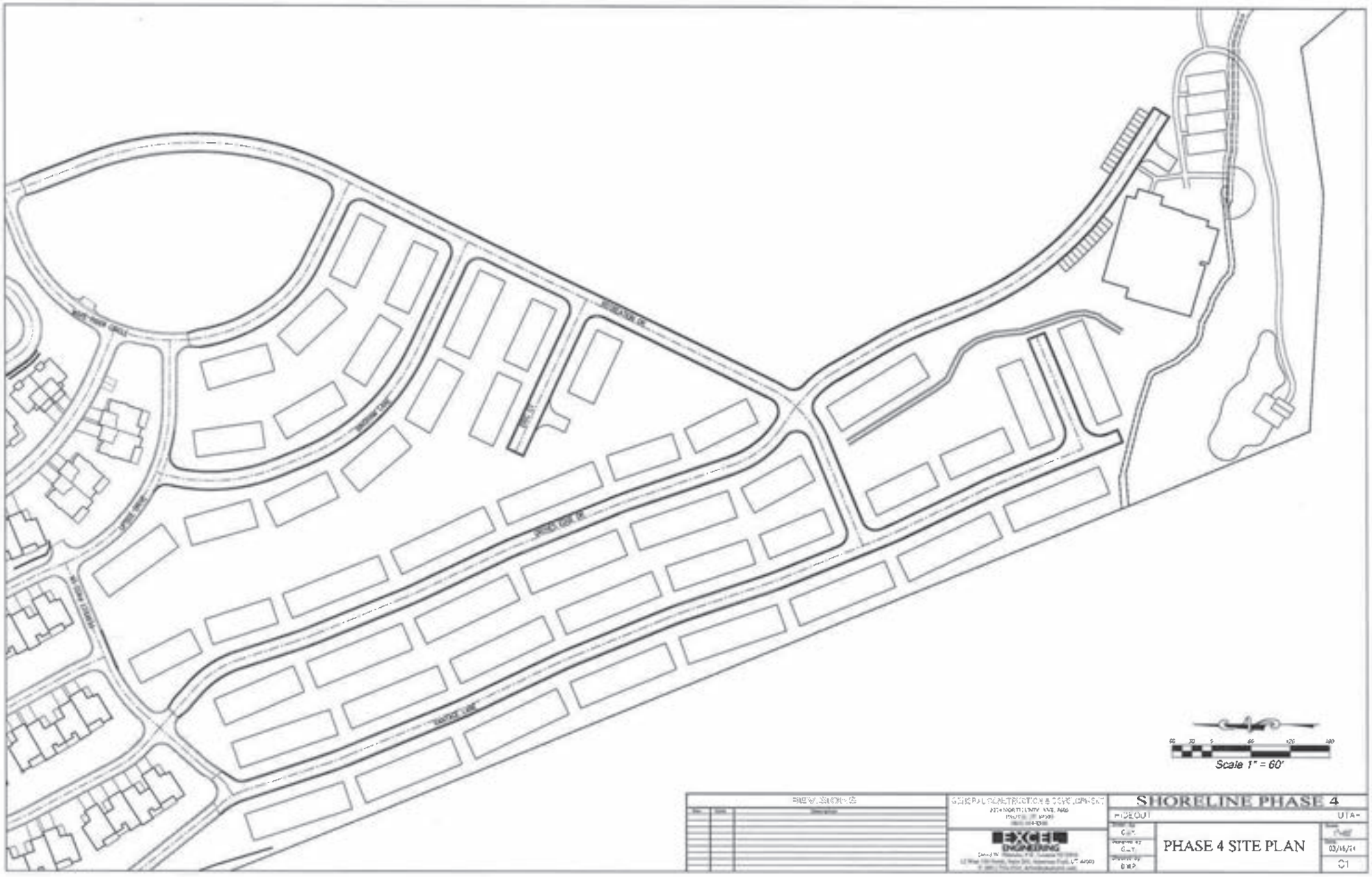
❑ 1. Bond: ☑ Cash ❑ Letter of Credit ❑ 2. Permit Fee ❑ 3. Detailed Drawings ❑ 4. Traffic Control Plan ❑ 5. SWPPP/NOI
❑ 6. Certificate of Insurance ❑ 7. Engineer's Estimate ❑ 8. Planning Department Approval see additional submittal information

By signing this application, the applicant agrees to comply with all State and Federal Laws and Town of Hideout Design and Construction Standards, Town Codes, and ordinances.

Applicant Signature: glen gabler	Date: 5/23/24
Application Verified as Complete By:	
Approved By: Ryan Taylor	Date: 7-1-2024
Final Inspection:	Date:

APPROVED 07/01/2024
TOWN OF HIDEOUT ENGINEERING DEPT.

A SIGNED COPY OF THIS PERMIT APPLICATION MUST BE AVAILABLE AT THE JOB SITE. This permit is issued only as permission to excavate in the public right of way. It is not a grant of easement or other similar interest. Permittee shall acquire easements from affected owners as required.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SHORELINE PHASE 4
PHASE 4 SITE PLAN
EXCEL
ENGINEERING
03/16/21
C1

Permit update work bid

SUNROC CORPORATION
CONSTRUCTION DIVISION
3468 North 1150 West, Spanish Fork, UTAH 84660 (801) 722-2100

CONTRACT PROPOSAL

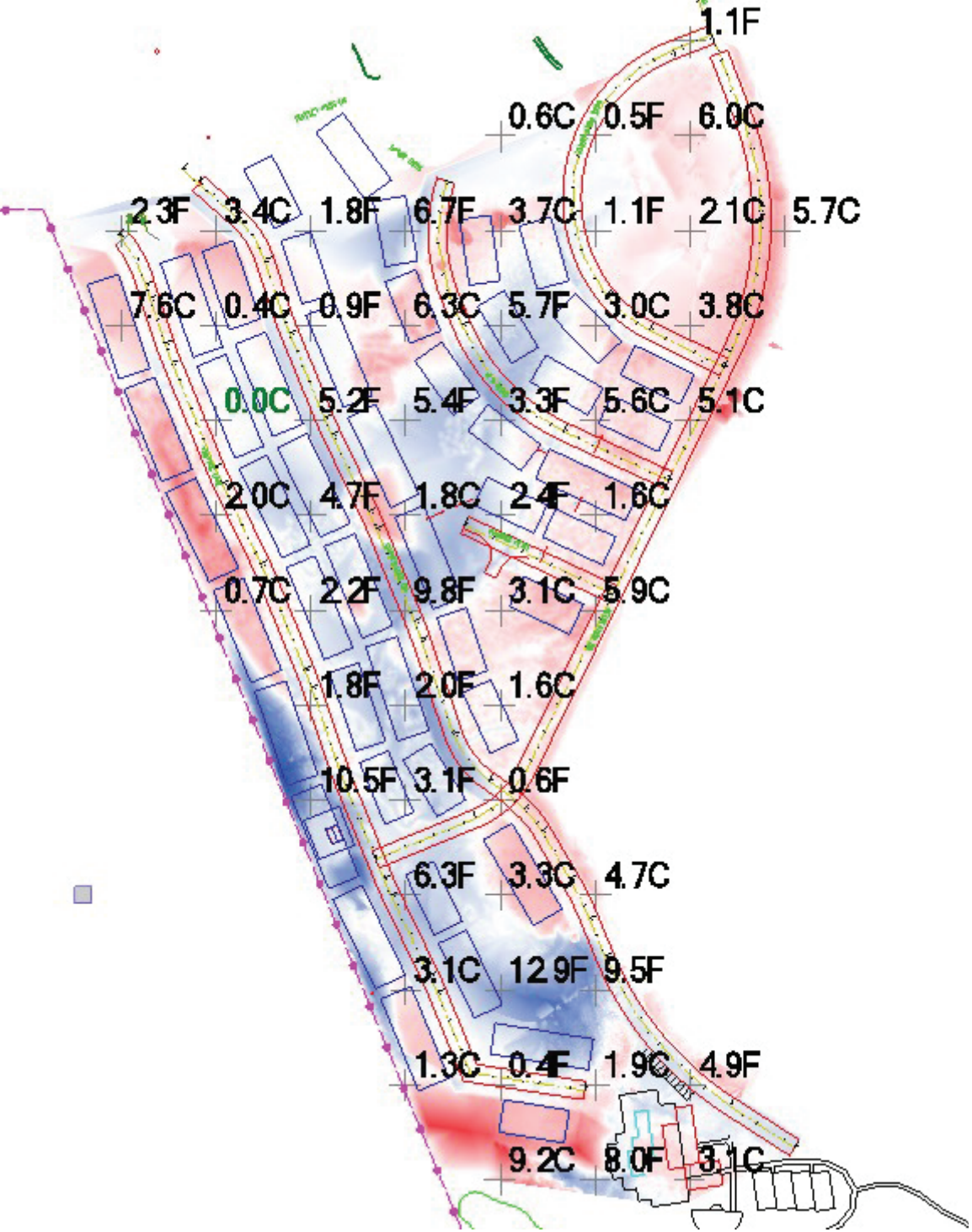
Customer:	GCD	**Contact:**	Glen Gabler
Address:		**Phone:**	
		Email:	
Project:	Shoreline Phase 4 Mass Ex	**Addendum:**	
Project Location:	Utah County	**Date:**	01/25/2024

SUNROC CORPORATION MAY WITHDRAW THIS PROPOSAL IF WRITTEN ACCEPTANCE IS NOT RECEIVED FROM THE BUYER WITHIN 30 DAYS OF THE PROPOSAL DATE

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	AMOUNT
-General Conditions					
20	GC's/Site Supervision/Subsistence	1.000	LS	$40,000.00	$40,000.00
30	Onsite Survey Check/Model Work	1.000	LS	$15,000.00	$15,000.00
40	Equipment Mob	1.000	LS	$12,500.00	$12,500.00
				***** General Conditions Total *****	**$67,500.00**
-Rough Grading					
180	Remove Existing Grubbings Pile & Haul Onsite	12,490.000	CY	$ 5.50	$68,695.00
185	Excavate Fill Piles down to Passed off Grade	20,365.000	CY	$ 6.25	$127,281.25
190	Cut & Fill Onsite	88,350.000	CY	$ 6.25	$552,187.50
				- Rough Grading Total	**$748,163.75**
				Total:	**$815,663.75**

PROJECT SPECIFIC NOTES:

- **Excludes SWPPP**
- **Excludes Rock Excavation**
- **Excludes winter conditions**
- **Excludes dewatering**
- **Excludes traffic Control**
- **Excludes Sweeping**
- **Excludes track out pad**
- **Excludes tree removal**
- **Excludes grubbing**
- **Excludes removal of rocks**
- **Excludes striping**
- **Excludes signage**
- **Excludes gas scope**
- **Excludes dewatering**
- **Excludes footing overexcavation and backfill**
- **Excludes electrical scope including conduits and sleeves**
- **Excludes landscaping scope including conduits and sleeves**
- **Excludes SWPPP plan / NOI permit / erosion control inspections**


1.1F
0.6C 0.5F 6.0C
2.3F 3.4C 1.8F 6.7F 3.7C 1.1F 2.1C 5.7C
7.6C 0.4C 0.9F 6.3C 5.7F 3.0C 3.8C
0.0C 5.2F 5.4F 3.3F 5.6C 5.1C
2.0C 4.7F 1.8C 2.4F 1.6C
0.7C 2.2F 9.8F 3.1C 5.9C
1.8F 2.0F 1.6C
10.5F 3.1F 0.6F
6.3F 3.3C 4.7C
3.1C 12.9F 9.5F
1.3C 0.4F 1.9C 4.9F
9.2C 8.0F 3.1C

May 21, 2024

Kent Culliard
Hideout Storm Water
Hideout, UT 84036

Reference: Shoreline Phase 4
Recreation Lane
Hideout, UT 84036

Dear Kent:

Silver Leaf SWPPP has prepared the Storm Water Pollution Prevention Plan (SWPPP) for Shoreline Phase 4.

The SWPPP Includes:

- Notice of Intent
- Construction General Permit
- Site Maps with Best Management Practices Types and Site Locations
- Best Management Practices (BMP) Detailed Specifications and Instructions
- Inspection Report Form
- Civil Site Construction Plans

This report presents our design and construction Best Management Practices recommendations based on our understanding of the project.

It has been rewarding to be of service during the Storm Water Pollution Prevention Phase of this project. Please contact us if you have any questions concerning the information contained in this report or if we can be of further assistance to you.

Sincere Regards,

Silver Leaf SWPPP

PROFESSIONAL ENGINEER
No. 343788
JESSICA JANE HALL
5/20/24
STATE OF UTAH

Mike Christofferson

Jessica Jane Hall, P.E.
Project Specialist

jessica@silverleafswppp.com

Mike Christofferson
Chief Executive Officer

mike@silverleafswppp.com

The electronic seal in this document was authorized by Jessica Jane Hall, P.E. No 343788-2202, on May 21, 2024

SECTION 11: SWPPP PREPARER CERTIFICATION

Instructions:

– Starting January 1, 2021: A SWPPP writer for a site greater than 5 acres, with a perennial surface water within 50 feet of the project, or with a steep slope (70% or 35 degrees or more) must hold a certification to demonstrate that they are a "qualified person" per CGP Part 7.2..

SWPPP Preparer

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Jessica Jane Hall, P.E.

Title: Professional Engineer State of Utah

Signature: Jessica Hall

Date: 5/21/2024

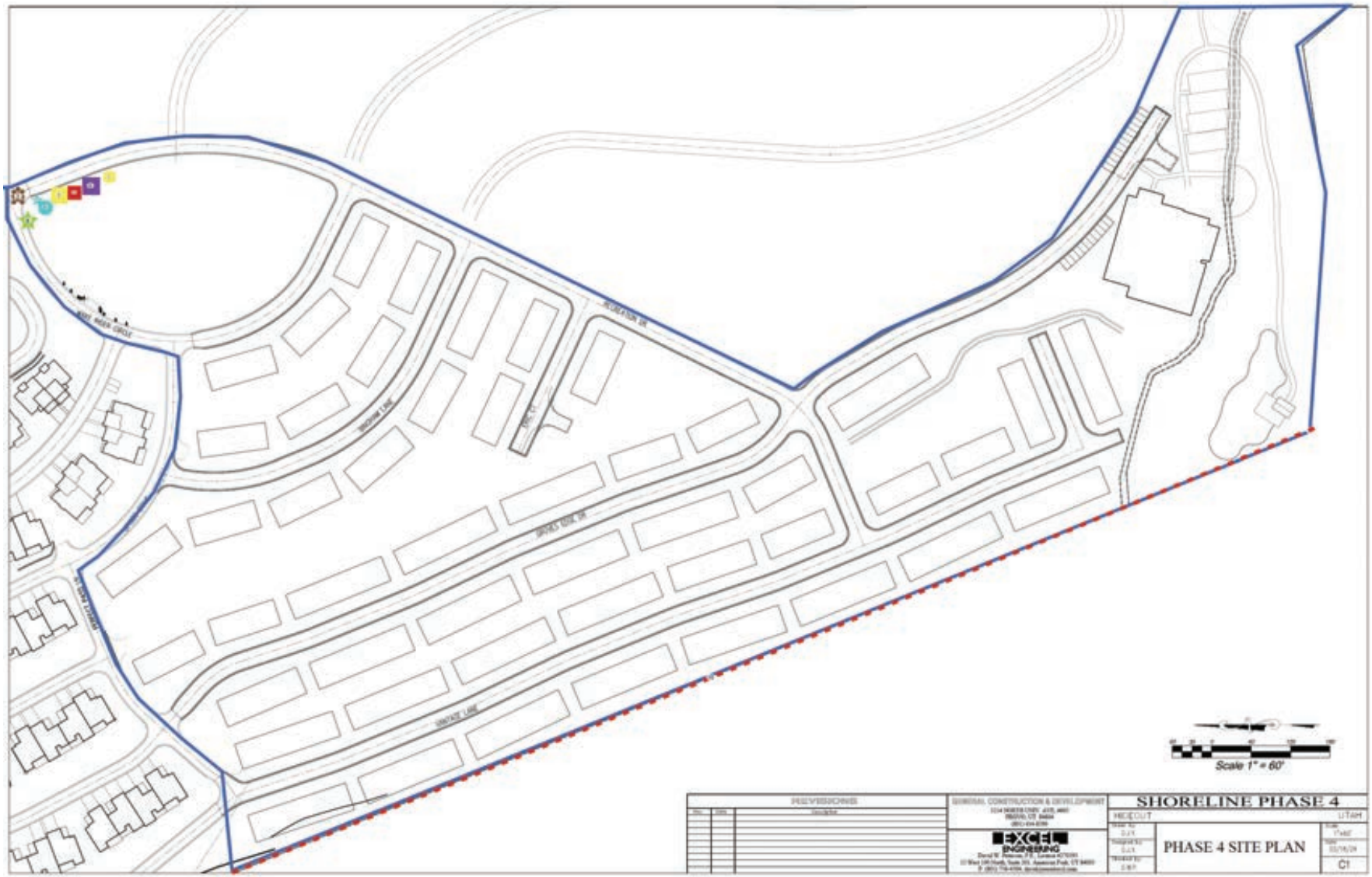
Appendix A: Site Maps

Vicinity Map:

Wetlands:
Are there Wetlands on or surrounding the site?

https://www.fws.gov/wetlands/data/mapper.html

Yes ☐ No ☒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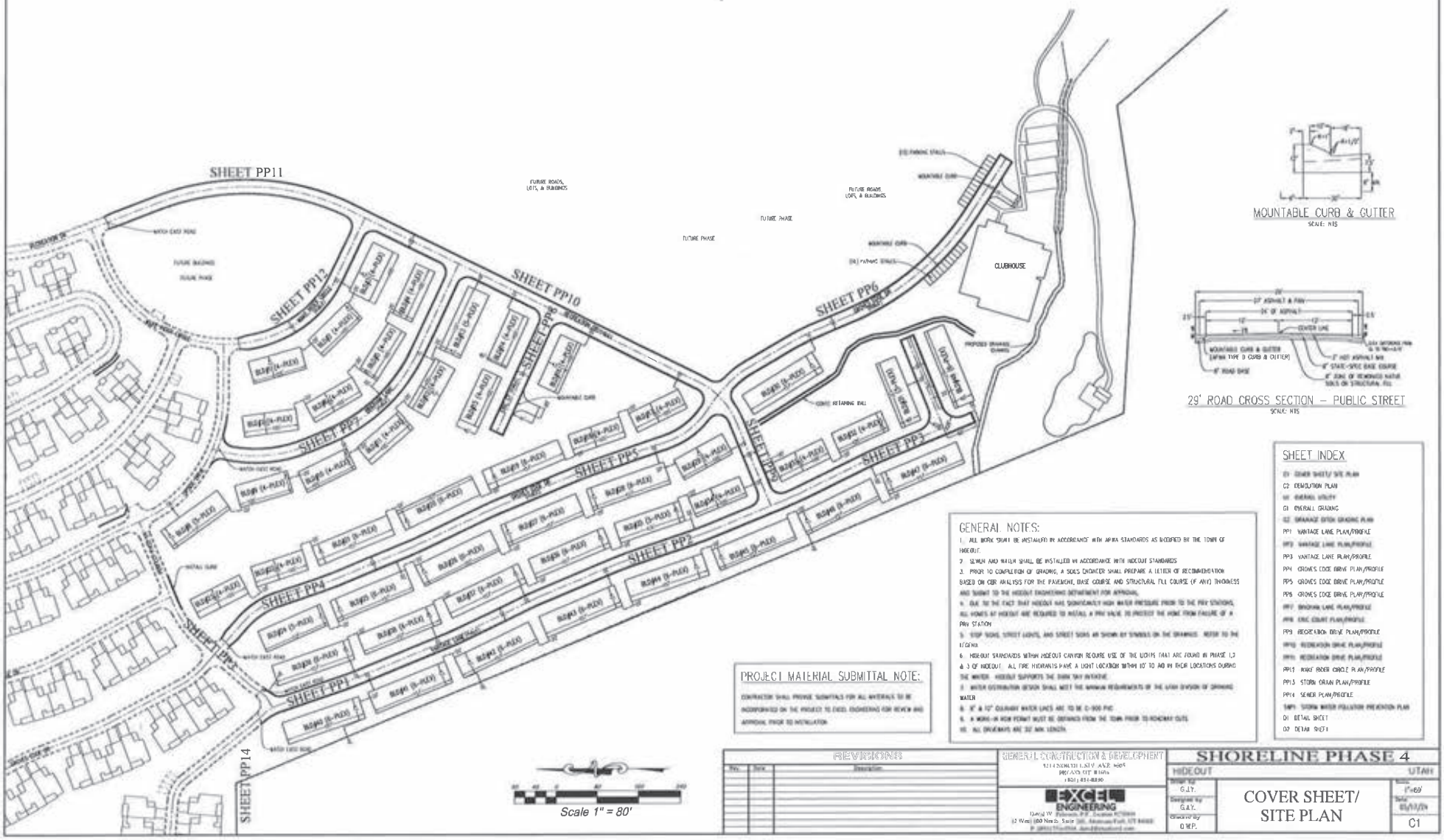
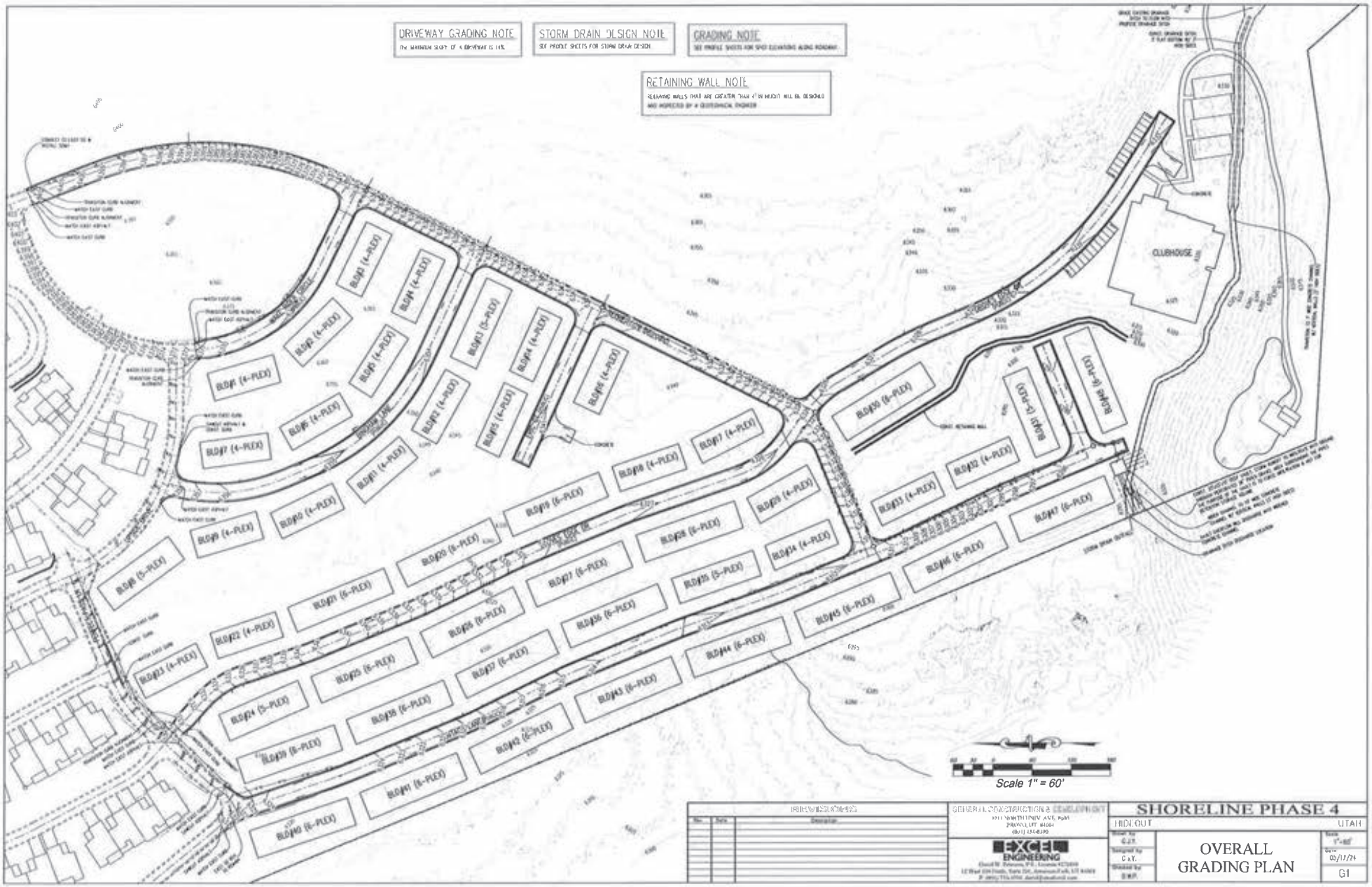
REVISIONS
GENERAL CONSTRUCTION & DEVELOPMENT
EXCEL ENGINEERING
SHORELINE PHASE 4
HIDEOUT
UTAH
PHASE 4 SITE PLAN
C1

LEGEND

- Limit of Disturbance (1)
- Perimeter Control (1)
- Toilet (1)
- Material Storage (1)
- Dumpster (1)
- Concrete Washout (1)
- SWPPP Sign (1)
- Concrete Washout Sign (1)
- Track out pad (1)
- Spill Kit (1)

SHORELINE - PHASE 4




DRIVEWAY GRADING NOTE
STORM DRAIN DESIGN NOTE
GRADING NOTE
RETAINING WALL NOTE
CLUBHOUSE
Scale 1" = 60'
REVISIONS
SHORELINE PHASE 4
HIDEOUT
UTAH
EXCEL ENGINEERING
OVERALL GRADING PLAN
G1

epic ENGINEERING
Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
1		07/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	119.9	129.0	6	96.4	95 / 100	DP
2		07/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	119.1	127.7	6	95.7	95 / 100	DP
3		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	118.2	127.5	6	95.0	95 / 100	DP
4		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	122.0	130.5	6	98.1	95 / 100	DP
5		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.3	124.0	134.3	6	99.7	95 / 100	DP
6		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.5	121.6	131.9	6	97.7	95 / 100	DP
7		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	122.0	131.9	6	98.1	95 / 100	DP
8		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	118.7	126.2	6	95.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
1	Subgrade Fill: Recreation Dr Canyon Fill Southeast Parking Stalls Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
2	Structural Fill: Recreation Dr Canyon Fill Under Clubhouse Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
3	Structural Fill: Recreation Dr Canyon Fill East Middle Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
4	Structural Fill: Recreation Dr Canyon Fill South Middle Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
5	Structural Fill: Recreation Dr Canyon Fill Middle of Fill Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
6	Structural Fill: Recreation Dr Canyon Fill North Middle of Fill Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
7	Structural Fill: Recreation Dr Canyon Fill East Middle of Fill Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
8	Structural Fill: Recreation Dr, Canyon Fill North Middle of Fill/Road Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge

Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. **1:** North Parking Lot End of Recreation Dr Lift 1

Related Tests

Test #	Related Test #	Test Type
3	4	Soil Nuclear Gauge
4	3	Soil Nuclear Gauge
4	5	Soil Nuclear Gauge
5	4	Soil Nuclear Gauge
5	6	Soil Nuclear Gauge
6	5	Soil Nuclear Gauge
6	7	Soil Nuclear Gauge
7	6	Soil Nuclear Gauge

epic ENGINEERING
Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
9		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	121.3	130.5	6	97.5	95 / 100	DP
10		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	120.7	130.2	6	97.0	95 / 100	DP
11		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	121.0	129.2	6	97.3	95 / 100	DP
12		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	122.0	130.8	6	98.1	95 / 100	DP
13		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	118.8	127.8	6	95.5	95 / 100	DP
14		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.5	120.7	131.0	6	97.0	95 / 100	DP
15		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.3	124.0	135.5	6	99.7	95 / 100	DP
16		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.2	123.0	134.3	6	98.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
9	Sub-base Fill: Recreation Canyon Fill East Middle Under Pickleball Courts Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge
10	Sub-base Fill: Recreation Canyon Fill South Middle Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge
11	Sub-base Fill: Recreation Canyon Fill Middle of Fill Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge
12	Sub-base Fill: Recreation Canyon Fill West Middle of Fill Middle of Building Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge
13	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 East Side Under Pickleball Court			Troxler / 3411-B / 7058 /	Nick Sorge
14	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 North Side Parking Lot			Troxler / 3411-B / 7058 /	Nick Sorge
15	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 Middle of Fill Area Under Road			Troxler / 3411-B / 7058 /	Nick Sorge
16	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 South Middle of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge

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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
9	10	Soil Nuclear Gauge
10	9	Soil Nuclear Gauge
10	11	Soil Nuclear Gauge
11	10	Soil Nuclear Gauge
11	12	Soil Nuclear Gauge
12	11	Soil Nuclear Gauge
13	14	Soil Nuclear Gauge
14	13	Soil Nuclear Gauge
14	15	Soil Nuclear Gauge
15	14	Soil Nuclear Gauge
15	16	Soil Nuclear Gauge
16	15	Soil Nuclear Gauge
16	17	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
17		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.5	118.2	128.2	6	95.0	95 / 100	DP
18		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	122.6	131.9	6	98.6	95 / 100	DP
19		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	123.5	133.5	6	99.3	95 / 100	DP
20		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	121.0	130.4	6	97.3	95 / 100	DP
21		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	122.3	132.0	6	98.3	95 / 100	DP
22		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	119.4	128.8	6	96.0	95 / 100	DP
23		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	120.3	130.0	6	96.7	95 / 100	DP
24		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	121.5	131.0	6	97.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
17	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 West Side of Fill Under Community Center			Troxler / 3411-B / 7058 /	Nick Sorge
18	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 East Side Under Pickleball Courts			Troxler / 3411-B / 7058 /	Nick Sorge
19	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 South Side of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
20	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 Middle of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
21	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 North of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
22	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 West of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
23	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 East Side of Fill			Troxler / 3411-B / 7058 /	Nick Sorge
24	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 South Side of Fill			Troxler / 3411-B / 7058 /	Nick Sorge

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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
17	16	Soil Nuclear Gauge
18	19	Soil Nuclear Gauge
19	18	Soil Nuclear Gauge
19	20	Soil Nuclear Gauge
20	19	Soil Nuclear Gauge
20	21	Soil Nuclear Gauge
21	20	Soil Nuclear Gauge
21	22	Soil Nuclear Gauge
22	21	Soil Nuclear Gauge
23	24	Soil Nuclear Gauge
24	23	Soil Nuclear Gauge
24	25	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
25		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	120.0	129.7	6	96.5	95 / 100	DP
26		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.2	118.3	128.0	6	95.1	95 / 100	DP
27		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	120.0	129.5	6	96.5	95 / 100	DP
28		08/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	119.0	126.7	6	95.7	95 / 100	DP
29		08/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	119.0	126.9	6	95.7	95 / 100	DP
30		08/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	118.4	126.8	6	95.2	95 / 100	DP
31		08/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	118.4	126.1	6	95.2	95 / 100	DP
32		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.0	118.6	130.5	6	95.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
25	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 North Side of Fill			Troxler / 3411-B / 7058 /	Nick Sorge
26	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 West Side of Fill			Troxler / 3411-B / 7058 /	Nick Sorge
27	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 Middle of Fill			Troxler / 3411-B / 7058 /	Nick Sorge
28	Sub-base Fill: Vantage Lane Road and Lot Fill +50' N of Sewer Lift Station Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
29	Sub-base Fill: Vantage Lane Road and Lot Fill +250' N of Sewer Lift Station Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
30	Sub-base Fill: Vantage Lane Road and Lot Fill +450' N of Sewer Lift Station Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
31	Sub-base Fill: Vantage Lane Road and Lot Fill +600' N of Sewer Lift Station Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
32	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 1 East Middle			Troxler / 3411-B / 7058 /	Nick Sorge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
25	24	Soil Nuclear Gauge
25	26	Soil Nuclear Gauge
26	25	Soil Nuclear Gauge
26	27	Soil Nuclear Gauge
27	26	Soil Nuclear Gauge
27	28	Soil Nuclear Gauge
28	27	Soil Nuclear Gauge
28	29	Soil Nuclear Gauge
29	28	Soil Nuclear Gauge
29	30	Soil Nuclear Gauge
30	29	Soil Nuclear Gauge
30	31	Soil Nuclear Gauge
31	30	Soil Nuclear Gauge
31	32	Soil Nuclear Gauge
32	31	Soil Nuclear Gauge
32	33	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
33		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.5	120.7	132.2	6	97.0	95 / 100	DP
34		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.5	122.4	134.0	6	98.4	95 / 100	DP
35		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.5	118.2	130.6	6	95.0	95 / 100	DP
36		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	11.2	121.0	134.6	6	97.3	95 / 100	DP
37		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.8	121.0	132.9	6	97.3	95 / 100	DP
38		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	122.3	132.0	6	98.3	95 / 100	DP
39		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.7	119.5	131.1	6	96.1	95 / 100	DP
40		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.1	124.0	136.5	6	99.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
33	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 2 East Middle			Troxler / 3411-B / 7058 /	Nick Sorge
34	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 1 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
35	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 2 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
36	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 1 North Middle			Troxler / 3411-B / 7058 /	Nick Sorge
37	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 2 North Middle			Troxler / 3411-B / 7058 /	Nick Sorge
38	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 1 West Middle			Troxler / 3411-B / 7058 /	Nick Sorge
39	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 2 West Middle			Troxler / 3411-B / 7058 /	Nick Sorge
40	Sub-base Fill: Recreation Dr Canyon Fill Lift 7 North Side			Troxler / 3411-B / 7058 /	Nick Sorge

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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
33	32	Soil Nuclear Gauge
33	34	Soil Nuclear Gauge
34	33	Soil Nuclear Gauge
34	35	Soil Nuclear Gauge
35	34	Soil Nuclear Gauge
35	36	Soil Nuclear Gauge
36	35	Soil Nuclear Gauge
36	37	Soil Nuclear Gauge
37	36	Soil Nuclear Gauge
37	38	Soil Nuclear Gauge
38	37	Soil Nuclear Gauge
38	39	Soil Nuclear Gauge
39	38	Soil Nuclear Gauge
39	40	Soil Nuclear Gauge
40	39	Soil Nuclear Gauge
40	41	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
41		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.3	120.0	132.4	6	96.5	95 / 100	DP
42		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.9	120.0	131.9	6	96.5	95 / 100	DP
43		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.7	120.2	133.1	6	96.6	95 / 100	DP
44		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.4	120.0	132.5	6	96.5	95 / 100	DP
45		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.5	119.3	130.6	6	95.9	95 / 100	DP
46		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	11.0	121.5	134.9	6	97.7	95 / 100	DP
47		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	122.8	130.5	6	98.7	95 / 100	DP
48		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	118.8	127.0	6	95.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
41	Sub-base Fill: Recreation Dr Canyon Fill Lift 7 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
42	Sub-base Fill: Recreation Dr Canyon Fill Lift 7 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
43	Sub-base Fill: Recreation Dr Canyon Fill Lift 7 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
44	Sub-base Fill: Vantage Lane Rd/Lot Fill +50 N of Sewer Lift Station Lift 2			Troxler / 3411-B / 7058 /	Nick Sorge
45	Sub-base Fill: Vantage Lane Rd/Lot Fill +250 N of Sewer Lift Station Lift 2			Troxler / 3411-B / 7058 /	Nick Sorge
46	Sub-base Fill: Vantage Lane Rd/Lot Fill +450 N of Sewer Lift Station Lift 2			Troxler / 3411-B / 7058 /	Nick Sorge
47	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
48	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 South Side			Troxler / 3411-B / 7058 /	Nick Sorge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
41	40	Soil Nuclear Gauge
41	42	Soil Nuclear Gauge
42	41	Soil Nuclear Gauge
42	43	Soil Nuclear Gauge
43	42	Soil Nuclear Gauge
43	44	Soil Nuclear Gauge
44	43	Soil Nuclear Gauge
44	45	Soil Nuclear Gauge
45	44	Soil Nuclear Gauge
45	46	Soil Nuclear Gauge
46	45	Soil Nuclear Gauge
46	47	Soil Nuclear Gauge
47	46	Soil Nuclear Gauge
47	48	Soil Nuclear Gauge
48	47	Soil Nuclear Gauge
48	49	Soil Nuclear Gauge

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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
49		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	123.0	131.7	6	98.9	95 / 100	DP
50		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.2	120.2	127.7	6	96.6	95 / 100	DP
51		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	124.2	133.1	6	99.8	95 / 100	DP
52		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	121.4	129.3	6	97.6	95 / 100	DP
53		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	120.3	128.8	6	96.7	95 / 100	DP
54		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	119.8	128.8	6	96.3	95 / 100	DP
55		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	118.7	126.2	6	95.4	95 / 100	DP
56		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.7	119.8	127.8	6	96.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
49	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
50	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
51	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 North Side			Troxler / 3411-B / 7058 /	Nick Sorge
52	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
53	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
54	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
55	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
56	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 North Side			Troxler / 3411-B / 7058 /	Nick Sorge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Hideout, UT

Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
49	48	Soil Nuclear Gauge
49	50	Soil Nuclear Gauge
50	49	Soil Nuclear Gauge
50	51	Soil Nuclear Gauge
51	50	Soil Nuclear Gauge
51	52	Soil Nuclear Gauge
52	51	Soil Nuclear Gauge
52	53	Soil Nuclear Gauge
53	52	Soil Nuclear Gauge
53	54	Soil Nuclear Gauge
54	53	Soil Nuclear Gauge
54	55	Soil Nuclear Gauge
55	54	Soil Nuclear Gauge
55	56	Soil Nuclear Gauge
56	55	Soil Nuclear Gauge
56	57	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
57		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	118.6	127.5	6	95.3	95 / 100	DP
58		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	119.3	128.0	6	95.9	95 / 100	DP
59		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	118.3	127.3	6	95.1	95 / 100	DP
60		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	119.0	126.9	6	95.7	95 / 100	DP
61		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	118.5	126.7	6	95.3	95 / 100	DP
62		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	121.2	130.8	6	97.4	95 / 100	DP
63		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	122.1	131.4	6	98.2	95 / 100	DP
64		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	122.5	131.2	6	98.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
57	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 North Side			Troxler / 3411-B / 7058 /	Nick Sorge
58	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
59	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
60	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
61	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
62	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 6 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
63	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 6 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
64	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 6 East Side			Troxler / 3411-B / 7058 /	Nick Sorge

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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
57	56	Soil Nuclear Gauge
57	58	Soil Nuclear Gauge
58	57	Soil Nuclear Gauge
58	59	Soil Nuclear Gauge
59	58	Soil Nuclear Gauge
59	60	Soil Nuclear Gauge
60	59	Soil Nuclear Gauge
60	61	Soil Nuclear Gauge
61	60	Soil Nuclear Gauge
61	62	Soil Nuclear Gauge
62	61	Soil Nuclear Gauge
62	63	Soil Nuclear Gauge
63	62	Soil Nuclear Gauge
63	64	Soil Nuclear Gauge
64	63	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
65		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	121.0	130.2	6	97.3	95 / 100	DP
66		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.0	121.4	131.1	6	97.6	95 / 100	DP
67		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	118.8	127.5	6	95.5	95 / 100	DP
68		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	118.4	126.8	6	95.2	95 / 100	DP
69		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	120.7	129.8	6	97.0	95 / 100	DP
70		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	118.2	126.5	6	95.0	95 / 100	DP
71		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	118.5	126.6	6	95.3	95 / 100	DP
72		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	118.7	126.9	6	95.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
65	Sub-base Fill: Vantage Lane Lower Canyon Lift 6 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
66	Sub-base Fill: Vantage Lane Lower Canyon Lift 7 Outside Radius South			Troxler / 3411-B / 7058 /	Nick Sorge
67	Sub-base Fill: Vantage Lane Lower Canyon Lift 7 Outside Radius North			Troxler / 3411-B / 7058 /	Nick Sorge
68	Sub-base Fill: Vantage Lane Lower Canyon Entrance Lift 3 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
69	Sub-base Fill: Vantage Lane Lower Canyon Entrance Lift 3 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
70	Sub-base Fill: Vantage Lane Lower Canyon Entrance Lift 7 Outer Radius Northeast			Troxler / 3411-B / 7058 /	Nick Sorge
71	Sub-base Fill: Vantage Lane +350' N of Intersection			Troxler / 3411-B / 7058 /	Nick Sorge
72	Sub-base Fill: Vantage Lane +150' N of Intersection Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
65	66	Soil Nuclear Gauge
66	65	Soil Nuclear Gauge
66	67	Soil Nuclear Gauge
67	66	Soil Nuclear Gauge
67	68	Soil Nuclear Gauge
68	67	Soil Nuclear Gauge
68	69	Soil Nuclear Gauge
69	68	Soil Nuclear Gauge
69	70	Soil Nuclear Gauge
70	69	Soil Nuclear Gauge
70	71	Soil Nuclear Gauge
71	70	Soil Nuclear Gauge
71	72	Soil Nuclear Gauge
72	71	Soil Nuclear Gauge
72	73	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Shoreline Phase 4 (2024)
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Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
73		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	119.8	128.7	6	96.3	95 / 100	DP
74		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	118.7	127.5	6	95.4	95 / 100	DP
75		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.7	118.7	126.7	6	95.4	95 / 100	DP
76		08/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	122.7	131.4	6	98.6	95 / 100	DP
77		08/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	119.6	128.3	6	96.1	95 / 100	DP
78		08/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	120.1	128.5	6	96.5	95 / 100	DP
79		09/03/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	119.7	128.6	6	96.2	95 / 100	DP
80		09/03/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	121.2	129.8	6	97.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
73	Sub-base Fill: Vantage Lane at Intersection Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
74	Sub-base Fill: Vantage Lane +100' S of Intersection Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
75	Sub-base Fill: Vantage Lane +300' S of Intersection Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
76	Sub-base Fill: Lower Canyon East Slope Fill Middle of Slope Lift 1			Troxler / 3430 / 22341 /	Nick Sorge
77	Sub-base Fill: Upper Canyon/Recreation Drive Fill Under Community Center			Troxler / 3430 / 22341 /	Nick Sorge
78	Sub-base Fill: Vantage Lane +200' N Sewer Lift Station			Troxler / 3430 / 22341 /	Nick Sorge
79	Sub-base Fill: Upper Canyon Recreation Dr West Side Under Building North Side Lift 8			Troxler / 3430 / 22341 /	Nick Sorge
80	Sub-base Fill: Upper Canyon Recreation Dr West Side Under Building South Side Lift 8			Troxler / 3430 / 22341 /	Nick Sorge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
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Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
73	72	Soil Nuclear Gauge
73	74	Soil Nuclear Gauge
74	73	Soil Nuclear Gauge
74	75	Soil Nuclear Gauge
75	74	Soil Nuclear Gauge
76	77	Soil Nuclear Gauge
77	76	Soil Nuclear Gauge
77	78	Soil Nuclear Gauge
78	77	Soil Nuclear Gauge
78	79	Soil Nuclear Gauge
79	78	Soil Nuclear Gauge
79	80	Soil Nuclear Gauge
80	79	Soil Nuclear Gauge
80	81	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Provo, UT 84604

Project:
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Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
81		09/03/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	118.6	127.4	6	95.3	95 / 100	DP
82		09/03/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	119.3	127.9	6	95.9	95 / 100	DP
83		08/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	119.0	126.7	6	95.7	95 / 100	DP
84		08/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	119.1	127.0	6	95.7	95 / 100	DP
85		08/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	118.5	126.9	6	95.3	95 / 100	DP
86		08/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	118.5	126.2	6	95.3	95 / 100	DP
87		08/29/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	119.5	127.7	6	96.1	95 / 100	DP
88		08/29/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	120.5	129.3	6	96.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
81	Sub-base Fill: Lower Canyon Vantage Lane East Slope Middle Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
82	Sub-base Fill: Lower Canyon Vantage Lane East Slope South Side Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
83	Sub-base Fill: Vantage Lane +50' N of Sewer Pump Station			Troxler / 3411-B / 7058 /	Nick Sorge
84	Sub-base Fill: Vantage Lane +250' N of Sewer Pump Station			Troxler / 3411-B / 7058 /	Nick Sorge
85	Sub-base Fill: Vantage Lane +450' Sewer Lift Station			Troxler / 3411-B / 7058 /	Nick Sorge
86	Sub-base Fill: Vantage Lane +600' Sewer Lift Station			Troxler / 3411-B / 7058 /	Nick Sorge
87	Sub-base Fill: Vantage Lane +600' Sewer Lift Station Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
88	Sub-base Fill: Vantage Lane +450' Sewer Lift Station Lift 2			Troxler / 3430 / 22341 /	Nick Sorge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Hideout, UT

Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
81	80	Soil Nuclear Gauge
81	82	Soil Nuclear Gauge
82	81	Soil Nuclear Gauge
83	84	Soil Nuclear Gauge
84	83	Soil Nuclear Gauge
85	86	Soil Nuclear Gauge
86	85	Soil Nuclear Gauge
86	87	Soil Nuclear Gauge
87	86	Soil Nuclear Gauge
87	88	Soil Nuclear Gauge
88	87	Soil Nuclear Gauge
88	89	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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3214 North University Avenue #605
Provo, UT 84604

Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
89		08/29/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	121.3	129.5	6	97.5	95 / 100	DP
90		08/29/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	120.8	129.9	6	97.1	95 / 100	DP
91		09/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	118.8	127.2	6	95.5	95 / 100	DP
92		09/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	120.0	128.9	6	96.5	95 / 100	DP
93		09/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.4	118.4	126.0	6	95.2	95 / 100	DP
94		09/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	119.1	127.0	6	95.7	95 / 100	DP
95		09/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.9	120.2	127.3	6	96.6	95 / 100	DP
96		09/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.1	119.0	126.3	6	95.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
89	Sub-base Fill: Vantage Lane +250' Sewer Lift Station Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
90	Sub-base Fill: Vantage Lane +50' Sewer Lift Station Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
91	Sub-base Fill: Recreation Dr +200' N of Canyon Entrance			Troxler / 3430 / 22341 /	Nick Sorge
92	Sub-base Fill: Recreation Dr +400' N of Canyon Entrance			Troxler / 3430 / 22341 /	Nick Sorge
93	Sub-base Fill: Recreation Dr +500' N of Canyon Entrance			Troxler / 3430 / 22341 /	Nick Sorge
94	Sub-base Fill: Lower Canyon Fill East Slope Middle of Slope Lift 3			Troxler / 3430 / 22341 /	Nick Sorge
95	Sub-base Fill: Lower Canyon Fill South of Vantage Lane Tee East Side			Troxler / 3430 / 22341 /	Nick Sorge
96	Sub-base Fill: Lower Canyon Fill South of Vantage Lane Tee Middle			Troxler / 3430 / 22341 /	Nick Sorge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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3214 North University Avenue #605
Provo, UT 84604

Project:
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Shoreline Phase 4 (2024)
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Hideout, UT

Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
89	88	Soil Nuclear Gauge
89	90	Soil Nuclear Gauge
90	89	Soil Nuclear Gauge
90	91	Soil Nuclear Gauge
91	90	Soil Nuclear Gauge
91	92	Soil Nuclear Gauge
92	91	Soil Nuclear Gauge
92	93	Soil Nuclear Gauge
93	92	Soil Nuclear Gauge
93	94	Soil Nuclear Gauge
94	93	Soil Nuclear Gauge
94	95	Soil Nuclear Gauge
95	94	Soil Nuclear Gauge
95	96	Soil Nuclear Gauge
96	95	Soil Nuclear Gauge
96	97	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
97		09/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.4	119.3	126.9	6	95.9	95 / 100	DP
98		08/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.3	122.1	137.1	6	98.2	95 / 100	DP
99		08/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.8	122.7	138.4	6	98.6	95 / 100	DP
100		08/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.2	121.8	136.7	6	97.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
97	Sub-base Fill: Lower Canyon Fill South of Vantage Lane Tee West Side			Troxler / 3430 / 22341 /	Nick Sorge
98	Base Fill: By South building			Troxler / 3440 / 31870 /	Trey Shipley
99	Base Fill: By South building			Troxler / 3440 / 31870 /	Trey Shipley
100	Base Fill: By South building			Troxler / 3440 / 31870 /	Trey Shipley

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
97	96	Soil Nuclear Gauge
98	99	Soil Nuclear Gauge
99	98	Soil Nuclear Gauge
99	100	Soil Nuclear Gauge
100	99	Soil Nuclear Gauge
100	101	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
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Provo, UT 84604

Project:
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Reviewed by: Mike Jensen

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
101		08/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.7	122.9	138.5	6	98.8	95 / 100	DP
102		08/28/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.6	119.5	126.2	6	96.1	95 / 100	DP
103		08/28/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	119.0	126.5	6	95.7	95 / 100	DP
104		08/27/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.5	121.4	132.9	6	97.6	95 / 100	DP/MP
105		08/22/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	119.9	128.7	6	96.4	95 / 100	DP
106		08/26/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.7	120.4	128.5	10	96.8	95 / 100	DP
107		08/26/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	118.5	126.8	10	95.3	95 / 100	DP
108		09/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.6	120.4	130.8	6	96.8	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
101	Base Fill: By South building			Troxler / 3440 / 31870 /	Trey Shipley
102	Base Fill: South end of lift on bend			Troxler / 3430 / 36238 /	Cameron Marziale
103	Base Fill: South end of lift on bend			Troxler / 3430 / 36238 /	Cameron Marziale
104	Base Fill: SE side around the lower drop off			Troxler / 3430 / 36238 /	Cameron Marziale
105	Base Fill: West end of lift center			Troxler / 3430 / 36238 /	Cameron Marziale
106	Base Fill: N lane E side			Troxler / 3430 / 36238 /	Cameron Marziale
107	Base Fill: S lane w side			Troxler / 3430 / 36238 /	Cameron Marziale
108	Mass Grading: Lot Fill Area			Troxler / 3430 / 22341 /	Wes Parkin

Remarks

DP: Density Pass

DP/MP: Density Pass / Moisture Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

104: Lower area around s end

Related Tests

Test #	Related Test #	Test Type
101	100	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
109		09/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	122.2	131.4	6	98.2	95 / 100	DP
110		09/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.2	124.1	134.3	6	99.8	95 / 100	DP
111		09/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	120.3	129.8	6	96.7	95 / 100	DP
112		09/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	120.6	129.5	6	96.9	95 / 100	DP
113		09/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	120.8	129.3	6	97.1	95 / 100	DP
114		09/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	122.5	130.6	6	98.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
109	Mass Grading: Removed Manhole Fill			Troxler / 3430 / 22341 /	Wes Parkin
110	Mass Grading: Lot fill			Troxler / 3430 / 22341 /	Wes Parkin
111	Mass Grading: Roadway fill			Troxler / 3430 / 22341 /	Wes Parkin
112	Mass Grading: Slope in Gorge			Troxler / 3430 / 22341 /	Wes Parkin
113	Mass Grading: Slope in Gorge			Troxler / 3430 / 22341 /	Wes Parkin
114	Mass Grading: Slope in Gorge			Troxler / 3430 / 22341 /	Wes Parkin

Remarks	Comments	Related Tests		
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.	Test #	Related Test #	Test Type

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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Phone: 435-654-6600

Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Optimum Moisture Tolerance (%)	Remark
115		09/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	13.0	119.5	135.0	6	96.1	95 / 100	NA	DP
116		09/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	13.0	119.4	134.9	6	96.0	95 / 100	NA	DP
117		09/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.2	118.7	133.2	6	95.4	95 / 100	NA	DP
118		09/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.9	118.5	129.0	6	95.3	95 / 100	NA	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
115	Base Fill: Far west side down below and to the north of sewer building			Troxler / 3440 / 24340 /	Cameron Marziale
116	Base Fill: 75 ft N of sewer building sw side			Troxler / 3440 / 24340 /	Cameron Marziale
117	Base Fill: 150 ft N of sewer building sw side			Troxler / 3440 / 24340 /	Cameron Marziale
118	Base Fill: S of sewage building			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Soil Nuclear Gauge

Density Test
Test Method: ASTM D 6938

Client:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
1		07/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	119.9	129.0	6	96.4	95 / 100	DP
2		07/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	119.1	127.7	6	95.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
1	Subgrade Fill: Recreation Dr Canyon Fill Southeast Parking Stalls Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
2	Structural Fill: Recreation Dr Canyon Fill Under Clubhouse Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. **1:** North Parking Lot End of Recreation Dr Lift 1

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
3		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	118.2	127.5	6	95.0	95 / 100	DP
4		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	122.0	130.5	6	98.1	95 / 100	DP
5		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.3	124.0	134.3	6	99.7	95 / 100	DP
6		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.5	121.6	131.9	6	97.7	95 / 100	DP
7		07/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	122.0	131.9	6	98.1	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
3	Structural Fill: Recreation Dr Canyon Fill East Middle Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
4	Structural Fill: Recreation Dr Canyon Fill South Middle Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
5	Structural Fill: Recreation Dr Canyon Fill Middle of Fill Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
6	Structural Fill: Recreation Dr Canyon Fill North Middle of Fill Lift 2			Troxler / 3430 / 36227 /	Nick Sorge
7	Structural Fill: Recreation Dr Canyon Fill East Middle of Fill Lift 2			Troxler / 3430 / 36227 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
3	4	Soil Nuclear Gauge
4	3	Soil Nuclear Gauge
4	5	Soil Nuclear Gauge
5	4	Soil Nuclear Gauge
5	6	Soil Nuclear Gauge
6	5	Soil Nuclear Gauge
6	7	Soil Nuclear Gauge
7	6	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
8		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	118.7	126.2	6	95.4	95 / 100	DP
9		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	121.3	130.5	6	97.5	95 / 100	DP
10		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	120.7	130.2	6	97.0	95 / 100	DP
11		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	121.0	129.2	6	97.3	95 / 100	DP
12		07/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	122.0	130.8	6	98.1	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
8	Structural Fill: Recreation Dr, Canyon Fill North Middle of Fill/Road Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge
9	Sub-base Fill: Recreation Canyon Fill East Middle Under Pickleball Courts Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge
10	Sub-base Fill: Recreation Canyon Fill South Middle Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge
11	Sub-base Fill: Recreation Canyon Fill Middle of Fill Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge
12	Sub-base Fill: Recreation Canyon Fill West Middle of Fill Middle of Building Lift 3			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
9	10	Soil Nuclear Gauge
10	9	Soil Nuclear Gauge
10	11	Soil Nuclear Gauge
11	10	Soil Nuclear Gauge
11	12	Soil Nuclear Gauge
12	11	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Soil Nuclear Gauge

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Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Optimum Moisture Tolerance (%)	Remark
13		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	118.8	127.8	6	95.5	95 / 100	NA	DP
14		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.5	120.7	131.0	6	97.0	95 / 100	NA	DP
15		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.3	124.0	135.5	6	99.7	95 / 100	NA	DP
16		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.2	123.0	134.3	6	98.9	95 / 100	NA	DP
17		08/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.5	118.2	128.2	6	95.0	95 / 100	NA	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
13	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 East Side Under Pickleball Court			Troxler / 3411-B / 7058 /	Nick Sorge
14	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 North Side Parking Lot			Troxler / 3411-B / 7058 /	Nick Sorge
15	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 Middle of Fill Area Under Road			Troxler / 3411-B / 7058 /	Nick Sorge
16	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 South Middle of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
17	Sub-base Fill: Recreation Dr Canyon Fill Lift 4 West Side of Fill Under Community Center			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
13	14	Soil Nuclear Gauge
14	13	Soil Nuclear Gauge
14	15	Soil Nuclear Gauge
15	14	Soil Nuclear Gauge
15	16	Soil Nuclear Gauge
16	15	Soil Nuclear Gauge
16	17	Soil Nuclear Gauge
17	16	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
18		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	122.6	131.9	6	98.6	95 / 100	DP
19		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	123.5	133.5	6	99.3	95 / 100	DP
20		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	121.0	130.4	6	97.3	95 / 100	DP
21		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	122.3	132.0	6	98.3	95 / 100	DP
22		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	119.4	128.8	6	96.0	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
18	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 East Side Under Pickleball Courts			Troxler / 3411-B / 7058 /	Nick Sorge
19	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 South Side of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
20	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 Middle of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
21	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 North of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
22	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 West of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
18	19	Soil Nuclear Gauge
19	18	Soil Nuclear Gauge
19	20	Soil Nuclear Gauge
20	19	Soil Nuclear Gauge
20	21	Soil Nuclear Gauge
21	20	Soil Nuclear Gauge
21	22	Soil Nuclear Gauge
22	21	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
18		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	122.6	131.9	6	98.6	95 / 100	DP
19		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	123.5	133.5	6	99.3	95 / 100	DP
20		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	121.0	130.4	6	97.3	95 / 100	DP
21		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	122.3	132.0	6	98.3	95 / 100	DP
22		08/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	119.4	128.8	6	96.0	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
18	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 East Side Under Pickleball Courts			Troxler / 3411-B / 7058 /	Nick Sorge
19	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 South Side of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
20	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 Middle of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
21	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 North of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge
22	Subgrade Fill: Recreation Dr Canyon Fill Lift 5 West of Fill Area			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
18	19	Soil Nuclear Gauge
19	18	Soil Nuclear Gauge
19	20	Soil Nuclear Gauge
20	19	Soil Nuclear Gauge
20	21	Soil Nuclear Gauge
21	20	Soil Nuclear Gauge
21	22	Soil Nuclear Gauge
22	21	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
23		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	120.3	130.0	6	96.7	95 / 100	DP
24		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	121.5	131.0	6	97.7	95 / 100	DP
25		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	120.0	129.7	6	96.5	95 / 100	DP
26		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.2	118.3	128.0	6	95.1	95 / 100	DP
27		08/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	120.0	129.5	6	96.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
23	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 East Side of Fill			Troxler / 3411-B / 7058 /	Nick Sorge
24	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 South Side of Fill			Troxler / 3411-B / 7058 /	Nick Sorge
25	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 North Side of Fill			Troxler / 3411-B / 7058 /	Nick Sorge
26	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 West Side of Fill			Troxler / 3411-B / 7058 /	Nick Sorge
27	Sub-base Fill: Recreation Dr Canyon Fill Lift 6 Middle of Fill			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
23	24	Soil Nuclear Gauge
24	23	Soil Nuclear Gauge
24	25	Soil Nuclear Gauge
25	24	Soil Nuclear Gauge
25	26	Soil Nuclear Gauge
26	25	Soil Nuclear Gauge
26	27	Soil Nuclear Gauge
27	26	Soil Nuclear Gauge
27	28	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
28		08/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	119.0	126.7	6	95.7	95 / 100	DP
29		08/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	119.0	126.9	6	95.7	95 / 100	DP
30		08/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	118.4	126.8	6	95.2	95 / 100	DP
31		08/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	118.4	126.1	6	95.2	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
28	Sub-base Fill: Vantage Lane Road and Lot Fill +50' N of Sewer Lift Station Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
29	Sub-base Fill: Vantage Lane Road and Lot Fill +250' N of Sewer Lift Station Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
30	Sub-base Fill: Vantage Lane Road and Lot Fill +450' N of Sewer Lift Station Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
31	Sub-base Fill: Vantage Lane Road and Lot Fill +600' N of Sewer Lift Station Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
28	27	Soil Nuclear Gauge
28	29	Soil Nuclear Gauge
29	28	Soil Nuclear Gauge
29	30	Soil Nuclear Gauge
30	29	Soil Nuclear Gauge
30	31	Soil Nuclear Gauge
31	30	Soil Nuclear Gauge
31	32	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
83		08/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	119.0	126.7	6	95.7	95 / 100	DP
84		08/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	119.1	127.0	6	95.7	95 / 100	DP
85		08/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	118.5	126.9	6	95.3	95 / 100	DP
86		08/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	118.5	126.2	6	95.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
83	Sub-base Fill: Vantage Lane +50' N of Sewer Pump Station			Troxler / 3411-B / 7058 /	Nick Sorge
84	Sub-base Fill: Vantage Lane +250' N of Sewer Pump Station			Troxler / 3411-B / 7058 /	Nick Sorge
85	Sub-base Fill: Vantage Lane +450' Sewer Lift Station			Troxler / 3411-B / 7058 /	Nick Sorge
86	Sub-base Fill: Vantage Lane +600' Sewer Lift Station			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
83	84	Soil Nuclear Gauge
84	83	Soil Nuclear Gauge
85	86	Soil Nuclear Gauge
86	85	Soil Nuclear Gauge
86	87	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
98		08/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.3	122.1	137.1	6	98.2	95 / 100	DP
99		08/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.8	122.7	138.4	6	98.6	95 / 100	DP
100		08/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.2	121.8	136.7	6	97.9	95 / 100	DP
101		08/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.7	122.9	138.5	6	98.8	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
98	Base Fill: By South building			Troxler / 3440 / 31870 /	Trey Shipley
99	Base Fill: By South building			Troxler / 3440 / 31870 /	Trey Shipley
100	Base Fill: By South building			Troxler / 3440 / 31870 /	Trey Shipley
101	Base Fill: By South building			Troxler / 3440 / 31870 /	Trey Shipley

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
98	99	Soil Nuclear Gauge
99	98	Soil Nuclear Gauge
99	100	Soil Nuclear Gauge
100	99	Soil Nuclear Gauge
100	101	Soil Nuclear Gauge
101	100	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
32		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.0	118.6	130.5	6	95.3	95 / 100	DP
33		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.5	120.7	132.2	6	97.0	95 / 100	DP
34		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.5	122.4	134.0	6	98.4	95 / 100	DP
35		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.5	118.2	130.6	6	95.0	95 / 100	DP
36		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	11.2	121.0	134.6	6	97.3	95 / 100	DP
37		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.8	121.0	132.9	6	97.3	95 / 100	DP
38		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	122.3	132.0	6	98.3	95 / 100	DP
39		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.7	119.5	131.1	6	96.1	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
32	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 1 East Middle			Troxler / 3411-B / 7058 /	Nick Sorge
33	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 2 East Middle			Troxler / 3411-B / 7058 /	Nick Sorge
34	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 1 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
35	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 2 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
36	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 1 North Middle			Troxler / 3411-B / 7058 /	Nick Sorge
37	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 2 North Middle			Troxler / 3411-B / 7058 /	Nick Sorge
38	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 1 West Middle			Troxler / 3411-B / 7058 /	Nick Sorge
39	Sub-base Fill: Vantage Lane Road Tee/Lower Canyon Fill Lift 2 West Middle			Troxler / 3411-B / 7058 /	Nick Sorge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
32	31	Soil Nuclear Gauge
32	33	Soil Nuclear Gauge
33	32	Soil Nuclear Gauge
33	34	Soil Nuclear Gauge
34	33	Soil Nuclear Gauge
34	35	Soil Nuclear Gauge
35	34	Soil Nuclear Gauge
35	36	Soil Nuclear Gauge
36	35	Soil Nuclear Gauge
36	37	Soil Nuclear Gauge
37	36	Soil Nuclear Gauge
37	38	Soil Nuclear Gauge
38	37	Soil Nuclear Gauge
38	39	Soil Nuclear Gauge
39	38	Soil Nuclear Gauge
39	40	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Provo, UT 84604

Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
40		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.1	124.0	136.5	6	99.7	95 / 100	DP
41		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.3	120.0	132.4	6	96.5	95 / 100	DP
42		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.9	120.0	131.9	6	96.5	95 / 100	DP
43		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.7	120.2	133.1	6	96.6	95 / 100	DP
44		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.4	120.0	132.5	6	96.5	95 / 100	DP
45		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.5	119.3	130.6	6	95.9	95 / 100	DP
46		08/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	11.0	121.5	134.9	6	97.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
40	Sub-base Fill: Recreation Dr Canyon Fill Lift 7 North Side			Troxler / 3411-B / 7058 /	Nick Sorge
41	Sub-base Fill: Recreation Dr Canyon Fill Lift 7 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
42	Sub-base Fill: Recreation Dr Canyon Fill Lift 7 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
43	Sub-base Fill: Recreation Dr Canyon Fill Lift 7 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
44	Sub-base Fill: Vantage Lane Rd/Lot Fill +50 N of Sewer Lift Station Lift 2			Troxler / 3411-B / 7058 /	Nick Sorge
45	Sub-base Fill: Vantage Lane Rd/Lot Fill +250 N of Sewer Lift Station Lift 2			Troxler / 3411-B / 7058 /	Nick Sorge
46	Sub-base Fill: Vantage Lane Rd/Lot Fill +450 N of Sewer Lift Station Lift 2			Troxler / 3411-B / 7058 /	Nick Sorge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Provo, UT 84604

Project:
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Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
40	39	Soil Nuclear Gauge
40	41	Soil Nuclear Gauge
41	40	Soil Nuclear Gauge
41	42	Soil Nuclear Gauge
42	41	Soil Nuclear Gauge
42	43	Soil Nuclear Gauge
43	42	Soil Nuclear Gauge
43	44	Soil Nuclear Gauge
44	43	Soil Nuclear Gauge
44	45	Soil Nuclear Gauge
45	44	Soil Nuclear Gauge
45	46	Soil Nuclear Gauge
46	45	Soil Nuclear Gauge
46	47	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
47		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	122.8	130.5	6	98.7	95 / 100	DP
48		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	118.8	127.0	6	95.5	95 / 100	DP
49		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	123.0	131.7	6	98.9	95 / 100	DP
50		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.2	120.2	127.7	6	96.6	95 / 100	DP
51		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	124.2	133.1	6	99.8	95 / 100	DP
52		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	121.4	129.3	6	97.6	95 / 100	DP
53		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	120.3	128.8	6	96.7	95 / 100	DP
54		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	119.8	128.8	6	96.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
47	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
48	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
49	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
50	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
51	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 3 North Side			Troxler / 3411-B / 7058 /	Nick Sorge
52	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
53	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
54	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 Middle			Troxler / 3411-B / 7058 /	Nick Sorge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
GCD
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Provo, UT 84604

Project:
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Shoreline Phase 4 (2024)
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Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
47	46	Soil Nuclear Gauge
47	48	Soil Nuclear Gauge
48	47	Soil Nuclear Gauge
48	49	Soil Nuclear Gauge
49	48	Soil Nuclear Gauge
49	50	Soil Nuclear Gauge
50	49	Soil Nuclear Gauge
50	51	Soil Nuclear Gauge
51	50	Soil Nuclear Gauge
51	52	Soil Nuclear Gauge
52	51	Soil Nuclear Gauge
52	53	Soil Nuclear Gauge
53	52	Soil Nuclear Gauge
53	54	Soil Nuclear Gauge
54	53	Soil Nuclear Gauge
54	55	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Project:
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Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
55		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	118.7	126.2	6	95.4	95 / 100	DP
56		08/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.7	119.8	127.8	6	96.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
55	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
56	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 4 North Side			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
55	54	Soil Nuclear Gauge
55	56	Soil Nuclear Gauge
56	55	Soil Nuclear Gauge
56	57	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density
Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
57		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	118.6	127.5	6	95.3	95 / 100	DP
58		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	119.3	128.0	6	95.9	95 / 100	DP
59		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	118.3	127.3	6	95.1	95 / 100	DP
60		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	119.0	126.9	6	95.7	95 / 100	DP
61		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	118.5	126.7	6	95.3	95 / 100	DP
62		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	121.2	130.8	6	97.4	95 / 100	DP
63		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	122.1	131.4	6	98.2	95 / 100	DP
64		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	122.5	131.2	6	98.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
57	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 North Side			Troxler / 3411-B / 7058 /	Nick Sorge
58	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
59	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
60	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
61	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 5 Middle			Troxler / 3411-B / 7058 /	Nick Sorge
62	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 6 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
63	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 6 South Side			Troxler / 3411-B / 7058 /	Nick Sorge
64	Sub-base Fill: Vantage Lane Rd/Lot Fill Lower Canyon Lift 6 East Side			Troxler / 3411-B / 7058 /	Nick Sorge

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Soil Nuclear Gauge

Density
Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Item # 3.

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
57	56	Soil Nuclear Gauge
57	58	Soil Nuclear Gauge
58	57	Soil Nuclear Gauge
58	59	Soil Nuclear Gauge
59	58	Soil Nuclear Gauge
59	60	Soil Nuclear Gauge
60	59	Soil Nuclear Gauge
60	61	Soil Nuclear Gauge
61	60	Soil Nuclear Gauge
61	62	Soil Nuclear Gauge
62	61	Soil Nuclear Gauge
62	63	Soil Nuclear Gauge
63	62	Soil Nuclear Gauge
63	64	Soil Nuclear Gauge
64	63	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density
Test Method: ASTM D 6938

Client:
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Project:
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Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
65		08/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	121.0	130.2	6	97.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
65	Sub-base Fill: Vantage Lane Lower Canyon Lift 6 Middle			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
65	66	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
66		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.0	121.4	131.1	6	97.6	95 / 100	DP
67		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	118.8	127.5	6	95.5	95 / 100	DP
68		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	118.4	126.8	6	95.2	95 / 100	DP
69		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	120.7	129.8	6	97.0	95 / 100	DP
70		08/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	118.2	126.5	6	95.0	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
66	Sub-base Fill: Vantage Lane Lower Canyon Lift 7 Outside Radius South			Troxler / 3411-B / 7058 /	Nick Sorge
67	Sub-base Fill: Vantage Lane Lower Canyon Lift 7 Outside Radius North			Troxler / 3411-B / 7058 /	Nick Sorge
68	Sub-base Fill: Vantage Lane Lower Canyon Entrance Lift 3 East Side			Troxler / 3411-B / 7058 /	Nick Sorge
69	Sub-base Fill: Vantage Lane Lower Canyon Entrance Lift 3 West Side			Troxler / 3411-B / 7058 /	Nick Sorge
70	Sub-base Fill: Vantage Lane Lower Canyon Entrance Lift 7 Outer Radius Northeast			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
66	65	Soil Nuclear Gauge
66	67	Soil Nuclear Gauge
67	66	Soil Nuclear Gauge
67	68	Soil Nuclear Gauge
68	67	Soil Nuclear Gauge
68	69	Soil Nuclear Gauge
69	68	Soil Nuclear Gauge
69	70	Soil Nuclear Gauge
70	69	Soil Nuclear Gauge
70	71	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Project:
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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
71		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	118.5	126.6	6	95.3	95 / 100	DP
72		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	118.7	126.9	6	95.4	95 / 100	DP
73		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	119.8	128.7	6	96.3	95 / 100	DP
74		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	118.7	127.5	6	95.4	95 / 100	DP
75		08/21/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.7	118.7	126.7	6	95.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
71	Sub-base Fill: Vantage Lane +350' N of Intersection			Troxler / 3411-B / 7058 /	Nick Sorge
72	Sub-base Fill: Vantage Lane +150' N of Intersection Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
73	Sub-base Fill: Vantage Lane at Intersection Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
74	Sub-base Fill: Vantage Lane +100' S of Intersection Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge
75	Sub-base Fill: Vantage Lane +300' S of Intersection Lift 1			Troxler / 3411-B / 7058 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
71	70	Soil Nuclear Gauge
71	72	Soil Nuclear Gauge
72	71	Soil Nuclear Gauge
72	73	Soil Nuclear Gauge
73	72	Soil Nuclear Gauge
73	74	Soil Nuclear Gauge
74	73	Soil Nuclear Gauge
74	75	Soil Nuclear Gauge
75	74	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
105		08/22/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	119.9	128.7	6	96.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
105	Base Fill: West end of lift center			Troxler / 3430 / 36238 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Provo, UT 84604

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
106		08/26/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.7	120.4	128.5	10	96.8	95 / 100	DP
107		08/26/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	118.5	126.8	10	95.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
106	Base Fill: N lane E side			Troxler / 3430 / 36238 /	Cameron Marziale
107	Base Fill: S lane w side			Troxler / 3430 / 36238 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
104		08/27/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.5	121.4	132.9	6	97.6	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
104	Base Fill: SE side around the lower drop off			Troxler / 3430 / 36238 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. **104:** Lower area around s end

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Soil Nuclear Gauge

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Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
102		08/28/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.6	119.5	126.2	6	96.1	95 / 100	DP
103		08/28/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	119.0	126.5	6	95.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
102	Base Fill: South end of lift on bend			Troxler / 3430 / 36238 /	Cameron Marziale
103	Base Fill: South end of lift on bend			Troxler / 3430 / 36238 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
87		08/29/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	119.5	127.7	6	96.1	95 / 100	DP
88		08/29/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	120.5	129.3	6	96.9	95 / 100	DP
89		08/29/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	121.3	129.5	6	97.5	95 / 100	DP
90		08/29/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	120.8	129.9	6	97.1	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
87	Sub-base Fill: Vantage Lane +600' Sewer Lift Station Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
88	Sub-base Fill: Vantage Lane +450' Sewer Lift Station Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
89	Sub-base Fill: Vantage Lane +250' Sewer Lift Station Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
90	Sub-base Fill: Vantage Lane +50' Sewer Lift Station Lift 2			Troxler / 3430 / 22341 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
87	86	Soil Nuclear Gauge
87	88	Soil Nuclear Gauge
88	87	Soil Nuclear Gauge
88	89	Soil Nuclear Gauge
89	88	Soil Nuclear Gauge
89	90	Soil Nuclear Gauge
90	89	Soil Nuclear Gauge
90	91	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

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Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
76		08/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	122.7	131.4	6	98.6	95 / 100	DP
77		08/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	119.6	128.3	6	96.1	95 / 100	DP
78		08/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	120.1	128.5	6	96.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
76	Sub-base Fill: Lower Canyon East Slope Fill Middle of Slope Lift 1			Troxler / 3430 / 22341 /	Nick Sorge
77	Sub-base Fill: Upper Canyon/Recreation Drive Fill Under Community Center			Troxler / 3430 / 22341 /	Nick Sorge
78	Sub-base Fill: Vantage Lane +200' N Sewer Lift Station			Troxler / 3430 / 22341 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
76	77	Soil Nuclear Gauge
77	76	Soil Nuclear Gauge
77	78	Soil Nuclear Gauge
78	77	Soil Nuclear Gauge
78	79	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
79		09/03/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	119.7	128.6	6	96.2	95 / 100	DP
80		09/03/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	121.2	129.8	6	97.4	95 / 100	DP
81		09/03/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	118.6	127.4	6	95.3	95 / 100	DP
82		09/03/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	119.3	127.9	6	95.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
79	Sub-base Fill: Upper Canyon Recreation Dr West Side Under Building North Side Lift 8			Troxler / 3430 / 22341 /	Nick Sorge
80	Sub-base Fill: Upper Canyon Recreation Dr West Side Under Building South Side Lift 8			Troxler / 3430 / 22341 /	Nick Sorge
81	Sub-base Fill: Lower Canyon Vantage Lane East Slope Middle Lift 2			Troxler / 3430 / 22341 /	Nick Sorge
82	Sub-base Fill: Lower Canyon Vantage Lane East Slope South Side Lift 2			Troxler / 3430 / 22341 /	Nick Sorge

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
79	78	Soil Nuclear Gauge
79	80	Soil Nuclear Gauge
80	79	Soil Nuclear Gauge
80	81	Soil Nuclear Gauge
81	80	Soil Nuclear Gauge
81	82	Soil Nuclear Gauge
82	81	Soil Nuclear Gauge

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Soil Nuclear Gauge

Density Tests
Test Method: ASTM D 6938

Client:
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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
119		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.3	119.7	132.0	6	96.2	95 / 100	DP
120		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.8	119.1	132.0	6	95.7	95 / 100	DP
121		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.2	120.8	133.1	6	97.1	95 / 100	DP
122		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.7	118.9	131.6	6	95.6	95 / 100	DP
123		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.9	120.8	136.4	6	97.1	95 / 100	DP
124		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.4	120.7	135.7	6	97.0	95 / 100	DP
125		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.1	122.9	134.1	6	98.8	95 / 100	DP
126		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	12.3	119.2	133.9	6	95.8	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
119	Base Fill: By South building			Troxler / 3430 / 36509 /	Trey Shipley
120	Base Fill: By South building			Troxler / 3430 / 36509 /	Trey Shipley
121	Base Fill: By South building			Troxler / 3430 / 36509 /	Trey Shipley
122	Base Fill: By South building			Troxler / 3430 / 36509 /	Trey Shipley
123	Base Fill: Roadway by South building			Troxler / 3430 / 36509 /	Trey Shipley
124	Base Fill: Roadway by South building			Troxler / 3430 / 36509 /	Trey Shipley
125	Base Fill: Roadway by South building			Troxler / 3430 / 36509 /	Trey Shipley
126	Base Fill: Roadway by South building			Troxler / 3430 / 36509 /	Trey Shipley

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Project:
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Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
119	120	Soil Nuclear Gauge
120	119	Soil Nuclear Gauge
120	121	Soil Nuclear Gauge
121	120	Soil Nuclear Gauge
121	122	Soil Nuclear Gauge
122	121	Soil Nuclear Gauge
124	125	Soil Nuclear Gauge
125	124	Soil Nuclear Gauge
125	126	Soil Nuclear Gauge
126	125	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
127		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	13.4	120.7	136.9	6	97.0	95 / 100	DP
128		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	13.8	121.1	137.8	6	97.3	95 / 100	DP
129		09/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	122.9	131.7	6	98.8	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
127	Base Fill: Roadway by South building			Troxler / 3430 / 36509 /	Trey Shipley
128	Base Fill: Roadway by South building			Troxler / 3430 / 36509 /	Trey Shipley
129	Base Fill: Roadway by South building			Troxler / 3430 / 36509 /	Trey Shipley

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
127	128	Soil Nuclear Gauge
128	127	Soil Nuclear Gauge

[redacted]

Reviewed by: Mike Jensen

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50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
130		09/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	11.1	119.4	132.7	6	96.0	95 / 100	DP
131		09/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.7	118.3	131.0	6	95.1	95 / 100	DP
132		09/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.3	118.6	128.4	6	95.3	95 / 100	DP
133		09/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.2	118.2	127.9	6	95.0	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
130	Base Fill: Center of lift			Troxler / 3440 / 24340 /	Cameron Marziale
131	Base Fill: 2nd lift mass fill			Troxler / 3440 / 24340 /	Cameron Marziale
132	Base Fill: 2nd lift mass fill N end			Troxler / 3440 / 24340 /	Cameron Marziale
133	Base Fill: Lower lift N of sewage building			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

Reviewed by: Mike Jensen

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
138		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.6	122.3	132.8	6	98.3	95 / 100	DP
139		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	10.8	123.7	137.1	6	99.4	95 / 100	DP
140		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	11.2	121.2	134.8	6	97.4	95 / 100	DP
141		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.6	118.5	128.7	6	95.3	95 / 100	DP
142		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	118.6	127.4	6	95.3	95 / 100	DP
143		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	122.3	131.5	6	98.3	95 / 100	DP
144		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.1	120.7	130.5	6	97.0	95 / 100	DP
145		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	121.3	130.0	6	97.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
138	Sub-base Fill: North of South building			Troxler / 3430 / 36509 /	Trey Shipley
139	Sub-base Fill: Southeast roadway			Troxler / 3430 / 36509 /	Trey Shipley
140	Sub-base Fill: Southeast roadway			Troxler / 3430 / 36509 /	Trey Shipley
141	Base Fill: S E end of road			Troxler / 3440 / 24340 /	Cameron Marziale
142	Sub-base Fill: Southeast roadway			Troxler / 3430 / 36509 /	Trey Shipley
143	Sub-base Fill: Southeast roadway			Troxler / 3430 / 36509 /	Trey Shipley
144	Sub-base Fill: Southeast roadway			Troxler / 3430 / 36509 /	Trey Shipley
145	Sub-base Fill: South hill			Troxler / 3430 / 36509 /	Trey Shipley

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
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Hideout, UT

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Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
138	139	Soil Nuclear Gauge
139	138	Soil Nuclear Gauge
139	140	Soil Nuclear Gauge
140	139	Soil Nuclear Gauge
142	143	Soil Nuclear Gauge
143	142	Soil Nuclear Gauge
143	144	Soil Nuclear Gauge
144	143	Soil Nuclear Gauge
144	145	Soil Nuclear Gauge
145	144	Soil Nuclear Gauge
145	146	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Provo, UT 84604

Project:
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Shoreline Phase 4 (2024)
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
146		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.9	118.8	129.4	6	95.5	95 / 100	DP
147		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.8	119.6	130.1	6	96.1	95 / 100	DP
148		09/16/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.4	119.0	130.2	6	95.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
146	Sub-base Fill: South hill			Troxler / 3430 / 36509 /	Trey Shipley
147	Sub-base Fill: South flat area			Troxler / 3430 / 36509 /	Trey Shipley
148	Sub-base Fill: South flat area			Troxler / 3430 / 36509 /	Trey Shipley

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
146	145	Soil Nuclear Gauge
146	147	Soil Nuclear Gauge
147	146	Soil Nuclear Gauge
147	148	Soil Nuclear Gauge
148	147	Soil Nuclear Gauge

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
149		09/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	4.3	118.3	123.4	6	95.1	95 / 100	DP
150		09/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.9	123.7	132.2	6	99.4	95 / 100	DP
151		09/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.3	121.2	132.5	6	97.4	95 / 100	DP
152		09/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.3	120.7	131.9	6	97.0	95 / 100	DP
158		09/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	118.8	127.1	6	95.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
149	Base Fill: Slope densities s side of job			Troxler / 3440 / 24340 /	Cameron Marziale
150	Base Fill: Clubhouse building pad			Troxler / 3430 / 36509 /	Trey Shipley
151	Base Fill: Pickleball courts (West side)			Troxler / 3430 / 36509 /	Trey Shipley
152	Base Fill: Pickleball courts (East side)			Troxler / 3430 / 36509 /	Trey Shipley
158	Base Fill: North east end of job			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
150	151	Soil Nuclear Gauge
151	150	Soil Nuclear Gauge
151	152	Soil Nuclear Gauge
152	151	Soil Nuclear Gauge

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Project:
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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
153		09/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.9	121.4	132.2	6	97.6	95 / 100	DP
154		09/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.1	120.9	131.9	6	97.2	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
153	Base Fill: North main flat section			Troxler / 3430 / 36509 /	Trey Shipley
154	Base Fill: North main flat section			Troxler / 3430 / 36509 /	Trey Shipley

Remarks

DP: Density Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Related Tests

Test #	Related Test #	Test Type
153	154	Soil Nuclear Gauge
154	153	Soil Nuclear Gauge

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
155		09/24/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	118.9	127.9	6	95.6	95 / 100	DP
156		09/24/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.0	118.5	128.0	6	95.3	95 / 100	DP
157		09/24/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	119.0	128.0	6	95.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
155	Base Fill: N end of job on small bench			Troxler / 3440 / 24340 /	Cameron Marziale
156	Base Fill: Bench lift n end of job			Troxler / 3440 / 24340 /	Cameron Marziale
157	Base Fill: Bench lift n end of job n end of lift			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
159		09/26/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	118.9	127.0	6	95.6	95 / 100	DP
160		09/26/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	120.1	128.0	6	96.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
159	Base Fill: Around drain s side			Troxler / 3440 / 24340 /	Cameron Marziale
160	Base Fill: North of sewage building bottom lift			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Project:
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Shoreline Phase 4 (2024)
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
168		09/18/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.4	119.3	129.3	6	95.9	95 / 100	DP
169		09/18/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.9	119.4	130.0	6	96.0	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
168	Base Fill: Middle of mass fill			Troxler / 3440 / 24340 /	Cameron Marziale
169	Base Fill: Mass fill N end			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Shoreline Phase 4 (2024)
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
166		09/20/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.9	119.9	130.6	6	96.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
166	Base Fill: Small lift NE corner			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

Reviewed by: Mike Jensen

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
167		09/19/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	4.5	119.1	124.5	6	95.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
167	Base Fill: Mass fill s end			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Shoreline Phase 4 (2024)
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
163		09/25/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.3	119.0	128.9	6	95.7	95 / 100	DP/MP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
163	Base Fill: N end of mass fill lift			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP/MP: Density Pass / Moisture Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

Reviewed by: Mike Jensen

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Provo, UT 84604

Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
170		09/26/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.0	118.9	126.0	6	95.6	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
170	Mass Grading: Bingham Lane North Side First 200'			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Project:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
161		09/27/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.9	120.2	127.3	6	96.6	95 / 100	DP
162		09/27/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	119.4	128.7	6	96.0	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
161	Base Fill: Mass fill NW end			Troxler / 3440 / 24340 /	Cameron Marziale
162	Base Fill: North corner of mass fill			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
171		09/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.0	119.7	125.7	6	96.2	95 / 100	DP
172		09/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	4.9	119.0	124.8	6	95.7	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
171	Mass Grading: Wake Rider Cir Road/Lot Fill North Side			Troxler / 3430 / 22341 /	Nick Sorge
172	Mass Grading: Wake Rider Cir Road/Lot Fill North Side +200' S			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
173		10/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.4	118.8	125.2	6	95.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
173	Base Fill: Main area east side			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

Reviewed by: Mike Jensen

epic ENGINEERING
Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
174		10/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	119.0	127.3	6	95.7	95 / 100	DP
175		10/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.5	119.0	126.7	6	95.7	95 / 100	DP
176		10/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	121.7	131.2	6	97.8	95 / 100	DP
177		10/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.7	122.5	131.9	6	98.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
174	Mass Grading: Groves Edge Dr +100' N of Rec Dr Intersection			Troxler / 3430 / 22341 /	Nick Sorge
175	Mass Grading: Groves Edge Dr +300' N of Rec Dr Intersection			Troxler / 3430 / 22341 /	Nick Sorge
176	Mass Grading: Groves Edge Dr +400' S of Perfect Pass Lane			Troxler / 3430 / 22341 /	Nick Sorge
177	Mass Grading: Groves Edge Dr +600' S of Perfect Pass Lane			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
178		10/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	3.3	118.3	122.2	6	95.1	95 / 100	DP
179		10/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	120.1	128.6	6	96.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
178	Base Fill: Parallel to upside drive			Troxler / 3440 / 24340 /	Cameron Marziale
179	Mass Grading: Wake Rider Cir +75' S of Upside Dr			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
180		10/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	120.1	127.7	6	96.5	95 / 100	DP
181		10/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.1	119.8	127.1	6	96.3	95 / 100	DP
182		10/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.0	120.2	127.4	6	96.6	95 / 100	DP
183		10/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	121.0	129.7	6	97.3	95 / 100	DP
184		10/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.0	119.6	126.8	6	96.1	95 / 100	DP
185		10/10/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.2	120.6	130.5	6	96.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
180	Base Fill: North side Next to the future roadway			Troxler / 3440 / 24340 /	Cameron Marziale
181	Mass Grading: Lot Fill Between Groves Edge Dr and Bingham Lane NW Side			Troxler / 3430 / 22341 /	Nick Sorge
182	Mass Grading: Lot Fill Between Groves Edge Dr and Bingham Lane North Middle			Troxler / 3430 / 22341 /	Nick Sorge
183	Mass Grading: Northend of Groves Edge Roadway			Troxler / 3430 / 22341 /	Nick Sorge
184	Mass Grading: Lot Fill Between Wake Rider Cir and Bingham Ln East Side			Troxler / 3430 / 22341 /	Nick Sorge
185	Mass Grading: Lot Fill Between Wake Rider Cir and Bingham Ln West Side			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
186		09/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	120.5	129.9	6	96.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
186	Base Fill: N of sewage building second lift			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
187		09/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.0	119.7	129.3	6	96.2	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
187	Base Fill: N end of mass fill			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
192		09/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.4	119.2	129.2	6	95.8	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
192	Base Fill: N of sewage building second level			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
193		09/09/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	121.4	131.0	6	97.6	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
193	Base Fill: N of sewage building bottom level			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
188		10/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.7	118.9	129.2	6	95.6	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
188	Base Fill: S end of mass fill			Troxler / 3430 / 36509 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

Test Method: ASTM D 6938

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Provo, UT 84604

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
189		10/11/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.8	120.9	127.9	6	97.2	95 / 100	DP
190		10/11/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.9	121.4	128.6	6	97.6	95 / 100	DP
191		10/11/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	4.8	119.8	125.6	6	96.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
189	Base Fill: By grove edge road			Troxler / 3440 / 24340 /	Cameron Marziale
190	Base Fill: By upside drive			Troxler / 3440 / 24340 /	Cameron Marziale
191	Base Fill: By upside drive a little farther south			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Soil Nuclear Gauge

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Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
194		10/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.4	118.2	128.1	6	95.0	95 / 100	DP
195		10/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	123.1	131.8	6	99.0	95 / 100	DP
196		10/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	123.1	131.8	6	99.0	95 / 100	DP
197		10/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	119.8	128.5	6	96.3	95 / 100	DP
198		10/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	120.8	129.3	6	97.1	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
194	Mass Grading: Groves Edge Dr +100' N of Recreation Dr Intersection			Troxler / 3440 / 24340 /	Nick Sorge
195	Mass Grading: Groves Edge Dr +300' N of Recreation Dr Intersection			Troxler / 3440 / 24340 /	Nick Sorge
196	Mass Grading: Groves Edge Dr +500' N of Recreation Dr Intersection			Troxler / 3440 / 24340 /	Nick Sorge
197	Mass Grading: Groves Edge Dr East Lot Fill +500' N of Recreation Dr Intersection			Troxler / 3440 / 24340 /	Nick Sorge
198	Mass Grading: Wake Rider Cir Lot Fill			Troxler / 3440 / 24340 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

[redacted]

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Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
199		10/22/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.7	118.3	127.4	6	95.1	95 / 100	DP
200		10/22/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	119.6	128.1	8	96.1	95 / 100	DP
201		10/22/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	118.3	127.2	6	95.1	95 / 100	DP
202		10/22/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.1	119.3	127.8	6	95.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
199	Mass Grading: Lot Fill Between Wake Rider Cir and Bingham Lane North Side +50' W Wake Rider Cir			Troxler / 3430 / 22341 /	Nick Sorge
200	Mass Grading: Lot Fill Between Wake Rider Cir and Bingham Lane North Side +150' W Wake Rider Cir			Troxler / 3430 / 22341 /	Nick Sorge
201	Mass Grading: Lot Fill Between Bingham Lane and Groves Edge North Side +20' E Groves Edge			Troxler / 3430 / 22341 /	Nick Sorge
202	Mass Grading: Lot Fill Between Bingham Lane and Groves Edge North Side +120' E Groves Edge			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Soil Nuclear Gauge

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Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
203		10/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.7	120.3	128.4	6	96.7	95 / 100	DP
204		10/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	118.5	127.5	6	95.3	95 / 100	DP
205		10/23/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	119.2	128.6	6	95.8	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
203	Mass Grading: Fill Between Bingham and Groves Edge North Side +50' E of Groves Edge			Troxler / 3430 / 22341 /	Nick Sorge
204	Mass Grading: Fill Between Bingham and Groves Edge North Side +150' E of Groves Edge			Troxler / 3430 / 22341 /	Nick Sorge
205	Mass Grading: Fill Between Bingham and Groves Edge North Side +250' E of Groves Edge			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Soil Nuclear Gauge

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Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
211		10/22/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.0	118.4	126.7	6	95.2	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
211	Base Fill: Near existing road			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Soil Nuclear Gauge

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206		10/24/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	118.5	127.5	6	95.3	95 / 100	DP
207		10/24/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	121.1	130.5	6	97.3	95 / 100	DP
208		10/24/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	4.2	119.5	124.5	6	96.1	95 / 100	DP/MF
209		10/24/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	2.8	120.3	123.7	6	96.7	95 / 100	DP/MP
210		10/24/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	122.4	131.9	6	98.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
206	Mass Grading: Bingham Lane +500' N of Recreation Dr			Troxler / 3430 / 22341 /	Nick Sorge
207	Mass Grading: Bingham Lane +600' N of Recreation Dr			Troxler / 3430 / 22341 /	Nick Sorge
208	Base Fill: S of shelf			Troxler / 3440 / 24340 /	Cameron Marziale
209	Base Fill: S of shelf			Troxler / 3440 / 24340 /	Cameron Marziale
210	Base Fill: Just south of lift difference			Troxler / 3430 / 36509 /	Cameron Marziale

Remarks

DP: Density Pass

DP/MF: Density Pass / Moisture Fail

DP/MP: Density Pass / Moisture Pass

Comments

Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

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Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
214		10/25/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.3	119.2	127.9	6	95.8	95 / 100	DP
215		10/25/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	118.9	127.9	6	95.6	95 / 100	DP
216		10/25/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	119.5	128.3	6	96.1	95 / 100	DP
217		10/25/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.5	121.1	130.2	6	97.3	95 / 100	DP
218		10/25/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.8	120.9	130.3	6	97.2	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
214	Mass Grading: Fill between Groves Edge and Bingham North Side +30' E Groves Edge			Troxler / 3430 / 22341 /	Nick Sorge
215	Mass Grading: Bingham Lane North Side			Troxler / 3430 / 22341 /	Nick Sorge
216	Mass Grading: Wake Rider Cir +500' S of Existing Pavement			Troxler / 3430 / 22341 /	Nick Sorge
217	Mass Grading: Wake Rider Cir +300' S of Existing Pavement			Troxler / 3430 / 22341 /	Nick Sorge
218	Mass Grading: Wake Rider Cir +100' S of Existing Pavement			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Kainen Trowery

Reviewed by: Mike Jensen

epic ENGINEERING
Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
220		11/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.6	123.0	132.3	6	98.9	95 / 100	DP
221		11/07/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.0	118.8	129.5	6	95.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
220	Mass Grading: Fill area Northwest of Eric Ct South of Eric Ct			Troxler / 3430 / 22341 /	Nick Sorge
221	Mass Grading: Fill area Northwest of Eric Ct North of Eric Ct			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

epic ENGINEERING
Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
212		09/11/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.9	119.3	129.9	6	95.9	95 / 100	DP
213		09/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.0	118.8	129.5	6	95.5	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
212	Base Fill: N of sewage building 3 lift up			Troxler / 3440 / 24340 /	Cameron Marziale
213	Base Fill: S end of mass fill			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Kainen Trowery

Reviewed by: Mike Jensen

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Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
224		11/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.2	120.4	129.1	6	96.8	95 / 100	DP
225		11/06/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.6	119.4	127.3	6	96.0	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
224	Base Fill: Mass fill NW end			Troxler / 3440 / 24340 /	Cameron Marziale
225	Base Fill: NE side of mass fill upper lift			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Kainen Trowery

Reviewed by: Mike Jensen

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Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
222		11/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	9.0	118.4	129.1	6	95.2	95 / 100	DP
223		11/08/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.0	123.0	132.8	6	98.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
222	Mass Grading: Groves Edge +100' North of Eric Ct			Troxler / 3430 / 22341 /	Nick Sorge
223	Mass Grading: Groves Edge +100' South of Eric Ct			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

Heber City Office
50 East 100 South
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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
228		10/28/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.2	119.9	127.3	6	96.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
228	Base Fill: SW corner			Troxler / 3430 / 22341 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

Heber City Office
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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
232		10/30/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.0	118.7	128.2	6	95.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
232	Base Fill: Just s of cenet 2 lifts up from bottom lift			Troxler / 3430 / 22341 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Kainen Trowery

Reviewed by: Mike Jensen

Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
229		10/31/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.4	121.0	130.0	6	97.3	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
229	Base Fill: Far east end second lift from bottom			Troxler / 3430 / 36509 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

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Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
230		11/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.8	120.5	127.5	6	96.9	95 / 100	DP
231		11/04/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.0	119.7	125.7	6	96.2	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
230	Base Fill: Slightly north of center 1 lift above lowest			Troxler / 3440 / 24340 /	Cameron Marziale
231	Base Fill: Lowest part of job nearest to jordanelle small section			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

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50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
233		11/05/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.7	119.3	127.3	6	95.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
233	Base Fill: Base fill second lift nw end			Troxler / 3430 / 36227 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

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Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
226		11/11/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	8.2	118.5	128.2	4	95.3	95 / 100	DP
227		11/11/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	119.3	127.4	4	95.9	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
226	Mass Grading: Edge Grove Fill West of Road +200' N of Recreation Dr Intersection			Troxler / 3430 / 22341 /	Nick Sorge
227	Mass Grading: Vantage Lane Fill East of Road +200' N of Recreation Dr Intersection			Troxler / 3430 / 22341 /	Nick Sorge

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
234		11/12/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	7.9	119.2	128.6	6	95.8	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
234	Base Fill: First lift up north west end			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Kainen Trowery

Reviewed by: Mike Jensen

Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
235		11/13/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	5.8	120.2	127.2	6	96.6	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
235	Base Fill: Nw end near power lines			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
236		11/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	121.2	128.8	6	97.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
236	Base Fill: Nw end			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

Kainen Trowery

Reviewed by: Mike Jensen

Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
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Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
236		11/14/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.3	121.2	128.8	6	97.4	95 / 100	DP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
236	Base Fill: Nw end			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP: Density Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

Heber City Office
50 East 100 South
Heber City, UT 84032
Phone: 435-654-6600

Soil Nuclear Gauge

Test Method: ASTM D 6938

Client:
GCD
3214 North University Avenue #605
Provo, UT 84604

Project:
24SM1432.16
Shoreline Phase 4 (2024)
Hideout
Hideout, UT

Item # 3.

Test Results

Test #	Retest Of	Test Date	Proctor ID	Method	Soil Classification	Optimum Moisture (%)	Maximum Dry Density (pcf)	In Place Moisture (%)	In Place Dry Density (pcf)	In Place Wet Density (pcf)	Probe Depth (in)	Percent Compaction	Min/Max Comp. (%)	Remark
237		11/15/24	Canyon Fill Lift 1		A-2-6	10.1	124.4	6.8	118.3	126.3	6	95.1	95 / 100	DP/MP

Test Information

Test #	Test Location	Elevation	Reference	Gauge Make / Model / SN / Calibrated	Field Technician
237	Base Fill: Farthest SE end along upper rim edge			Troxler / 3440 / 24340 /	Cameron Marziale

Remarks	Comments
DP/MP: Density Pass / Moisture Pass	Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency.

KAINEN TROWERY

Reviewed by: Mike Jensen

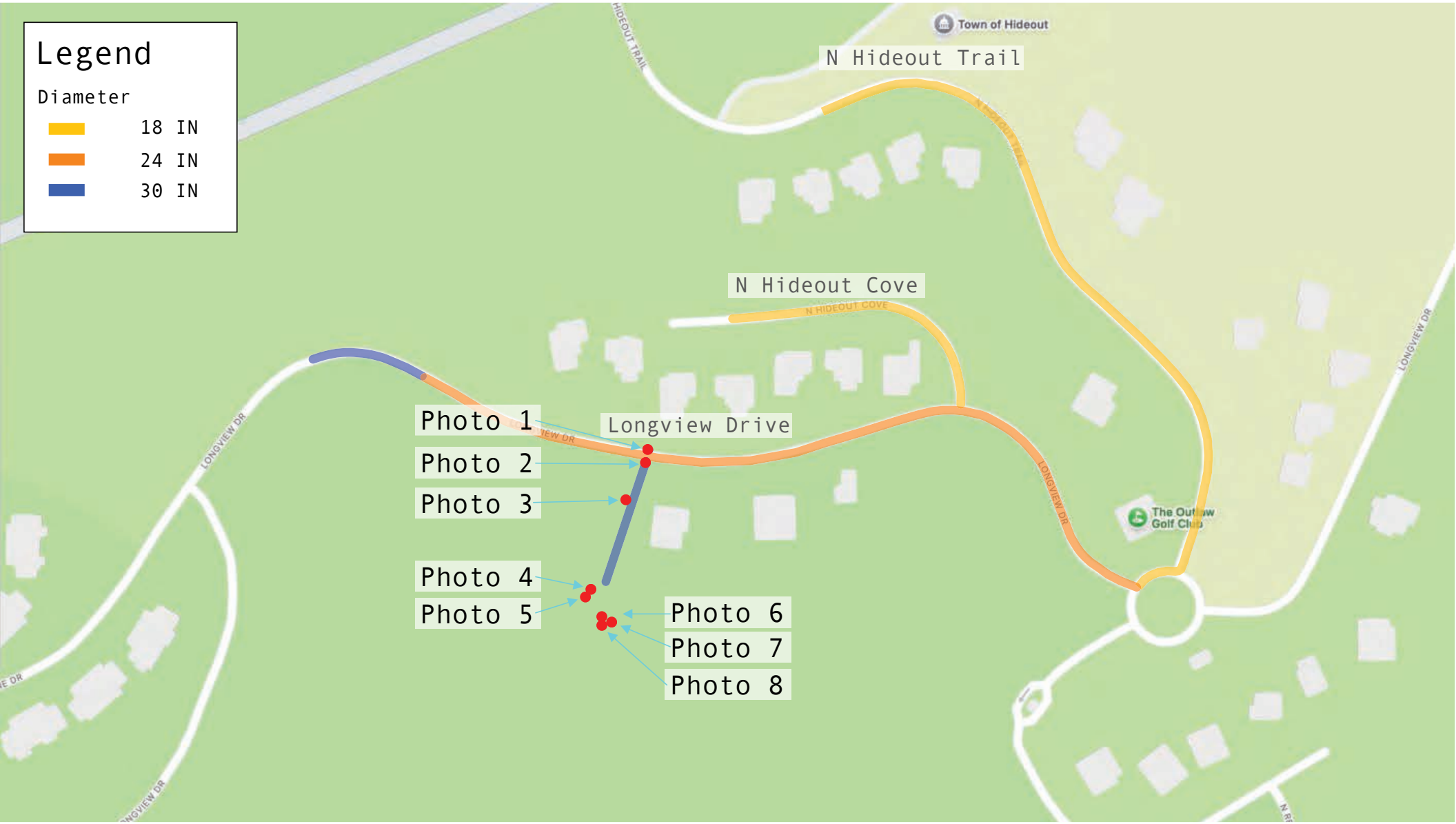
GCD, Inc.

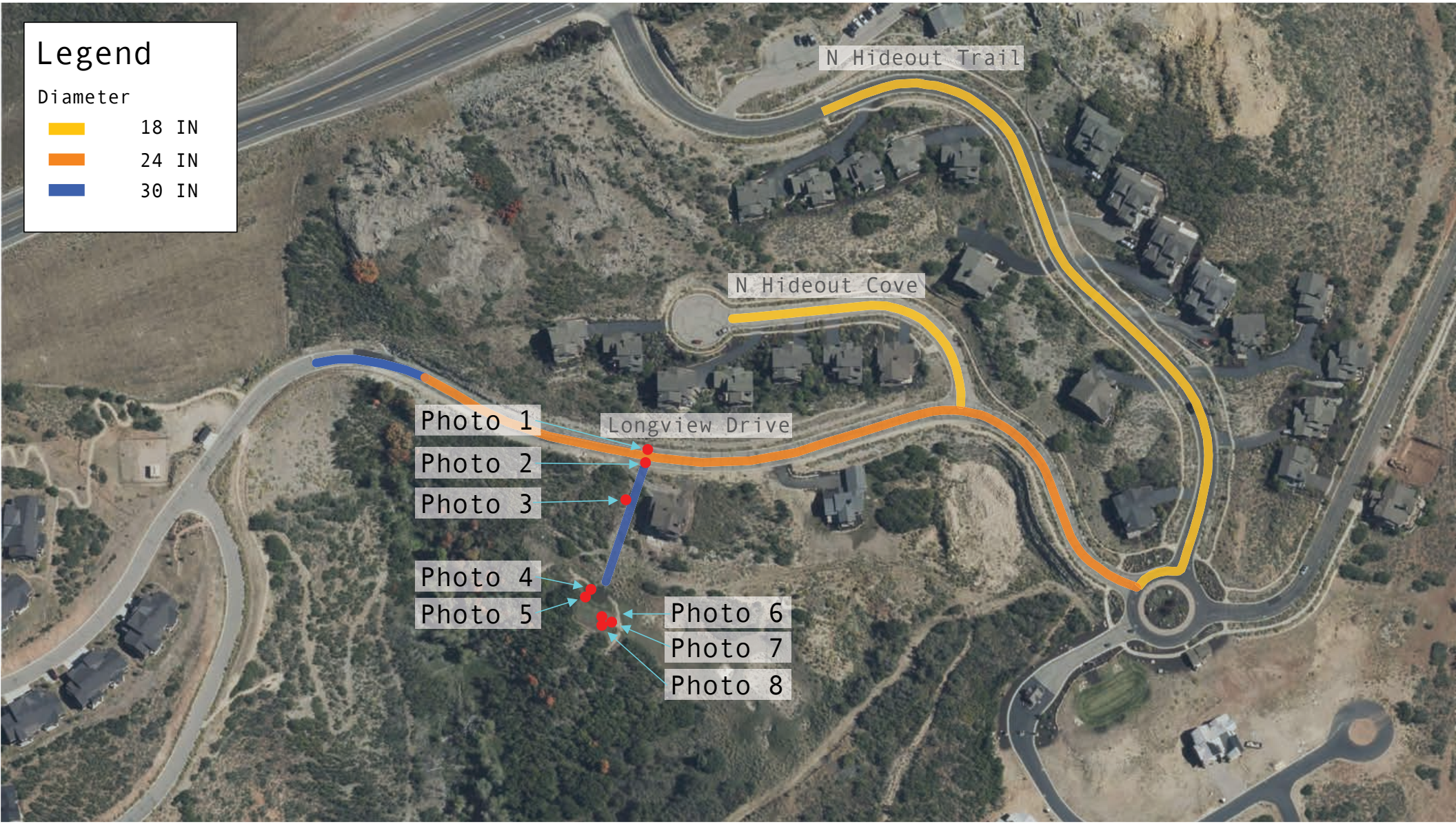
Job Cost Journal

04/29/25

Job Cost Journal
by Job/Cost Code
Job 600 to 600, Phase 4 to 4, Vendor# = 14, Status = 1,...

Record#	Trans#	Date	Description/Job	Vendor/Employee/Equipment	Cost Type	Cost
600	**Shoreline - Hideout**					
Cost Code	**1720.000**	**Field Engineering**				
36955	20126875	03/12/2022	STH PH4 #3, field t	14 Epic Engineering PC, I	5	3,099.00
37283	20127145	04/12/2022	ST PH4 #4, testing	14 Epic Engineering PC, I	5	5,178.00
37585	20127578	06/14/2022	SL P4 #6, testing	14 Epic Engineering PC, I	4	3,030.00
37723	20127878	06/14/2022	SL P4 #6, testing	14 Epic Engineering PC, I	4	1,026.25
38209	20128276	08/18/2022	STH PH4 #7, field t	14 Epic Engineering PC, I	5	79.00
38455	20128582	09/16/2022	STH PH4 #8-8, fiel	14 Epic Engineering PC, I	5	126.50
41157	20242247	09/28/2024	ST PH4 #24, field e	14 Epic Engineering PC, I	5	6,259.50
41307	20242491	10/18/2024	ST PH4 #25, site vi	14 Epic Engineering PC, I	5	10,127.00
41496	20242777	11/20/2024	ST PH4 #26, field t	14 Epic Engineering PC, I	5	12,425.75
41679	20242972	12/16/2024	ST PH4 #27, field e	14 Epic Engineering PC, I	5	9,924.75
41891	20243158	01/12/2025	ST PH4 #28, field/	14 Epic Engineering PC, I	5	5,673.00
					Cost Code Total:	**56,948.75**
					Job Total:	**56,948.75**
					Grand Total:	**56,948.75**


Legend
Diameter
18 IN
24 IN
30 IN
Town of Hideout
N Hideout Trail
N Hideout Cove
Longview Drive
Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8
LONGVIEW DR
The Outlaw Golf Club


Legend
Diameter
18 IN
24 IN
30 IN
N Hideout Trail
N Hideout Cove
Longview Drive
Photo 1
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8

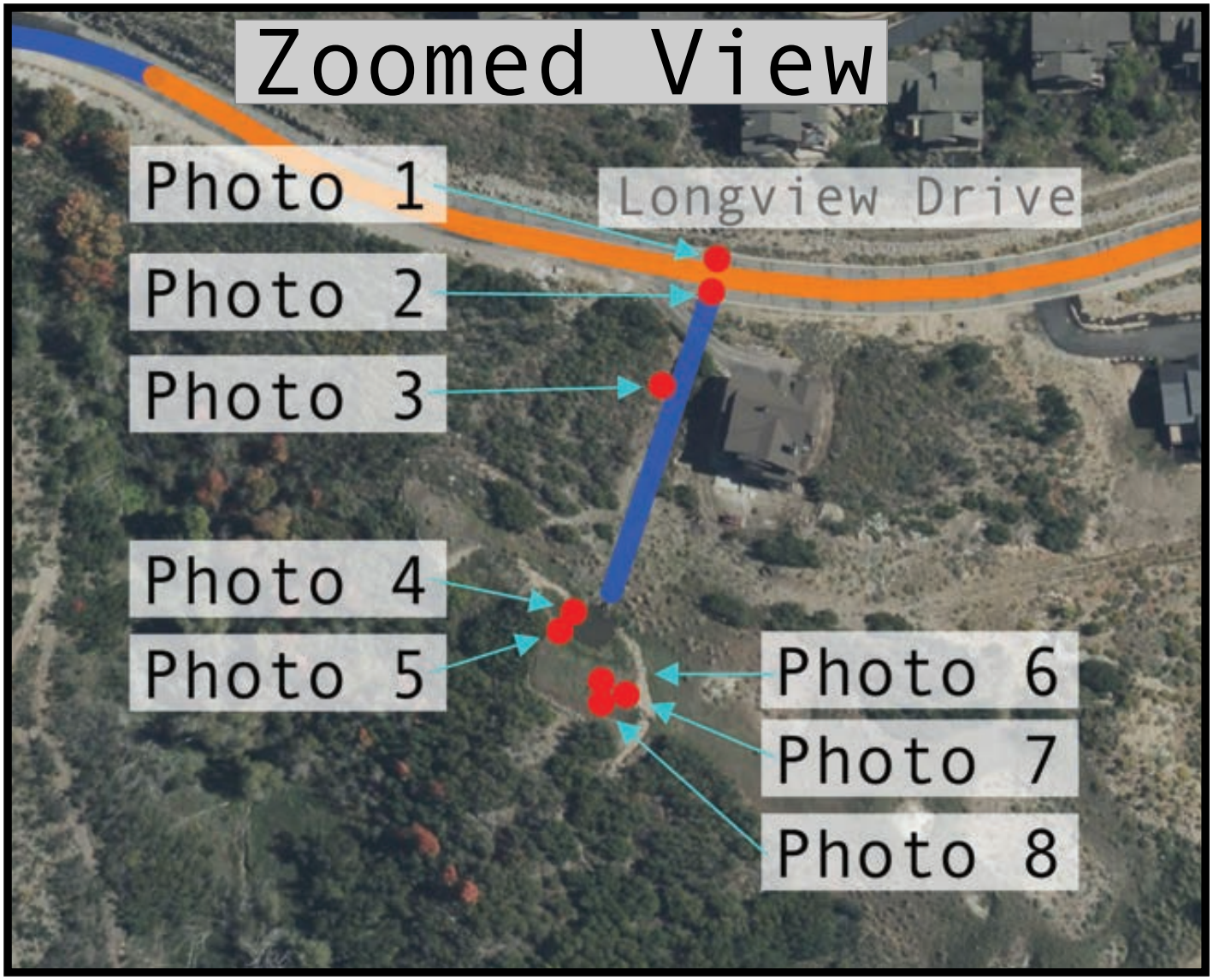

Zoomed View
Photo 1
Longview Drive
Photo 2
Photo 3
Photo 4
Photo 5
Photo 6
Photo 7
Photo 8

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

East Inlet
West Inlet
Pipe Path
Outlet
Pond
Riprap

East Inlet
West Inlet
Pipe Path
Pond
Outlet
Riprap

Storm Water Drainage Report 02.11.2025
BASIN FLOWS TO EXISTING 36” UDOT CULVERT
Hideout, Utah

This report analysis the subbasins that flow into existing 36” UDOT culvert (Corrugated metal pipe) North of Soaring Hawk Subdivision and South of Klaim subdivision.

10 Year
Storm Water Design criteria requiring the use of a 10-year storm in the analysis is not specified in the governing code. Developer elected to complete the Analysis using the 3 Hour 10 year storm distribution proposed by the Town of Hideout (Rain Gauge-10-TOH). The existing culvert inlet projects into an existing storage basin. The existing culvert discharges to the east side of Long View Drive (above the Shoreline Subdivision).

A storage basin was created when Long View Drive was constructed. This basin will be enhanced to achieve at least 25,000 cuft of storage. A catch basin will be installed to drain the bottom of the storage pond with a 17” orifice plate. The peak flow rate through the orifice during the 10 yr storm will be 8.15 CFS. The down stream piping will be designed to accommodate this flow rate without being surcharged. The maximum storage pond water depth will be approximately 2ft.

100 Year
Storm Water Design criteria requiring the use of a 100-year storm in the analysis is not specified in the governing code. Developer elected to complete the Analysis using the 3 Hour 100-year storm distribution proposed by the Town of Hideout (Rain Gauge-100TOH). The existing culvert inlet projects into an existing storage basin. At peak runoff flow this storage basin does store some water. The existing culvert discharges to the east side of Long View Drive (above the Shoreline Subdivision).

A storage basin was created when Long View Drive was constructed. This basin will be enhanced to achieve at least 25,000 cuft of storage. A catch basin will be installed to drain the bottom of the storage pond with a 17” orifice plate. The peak flow rate through the orifice during the 100-yr storm will be 16.4 CFS. The storage pond weir overflow will discharge 10.9 CFS. The maximum storage pond water depth will be approximately 5ft.

I understand that the Town of Hideout does not and will not assume liability for the drainage facilities design.

Prepared by
David Erichsen
Erichsen Engineering
david@erichsen.us
(801) 953-5368

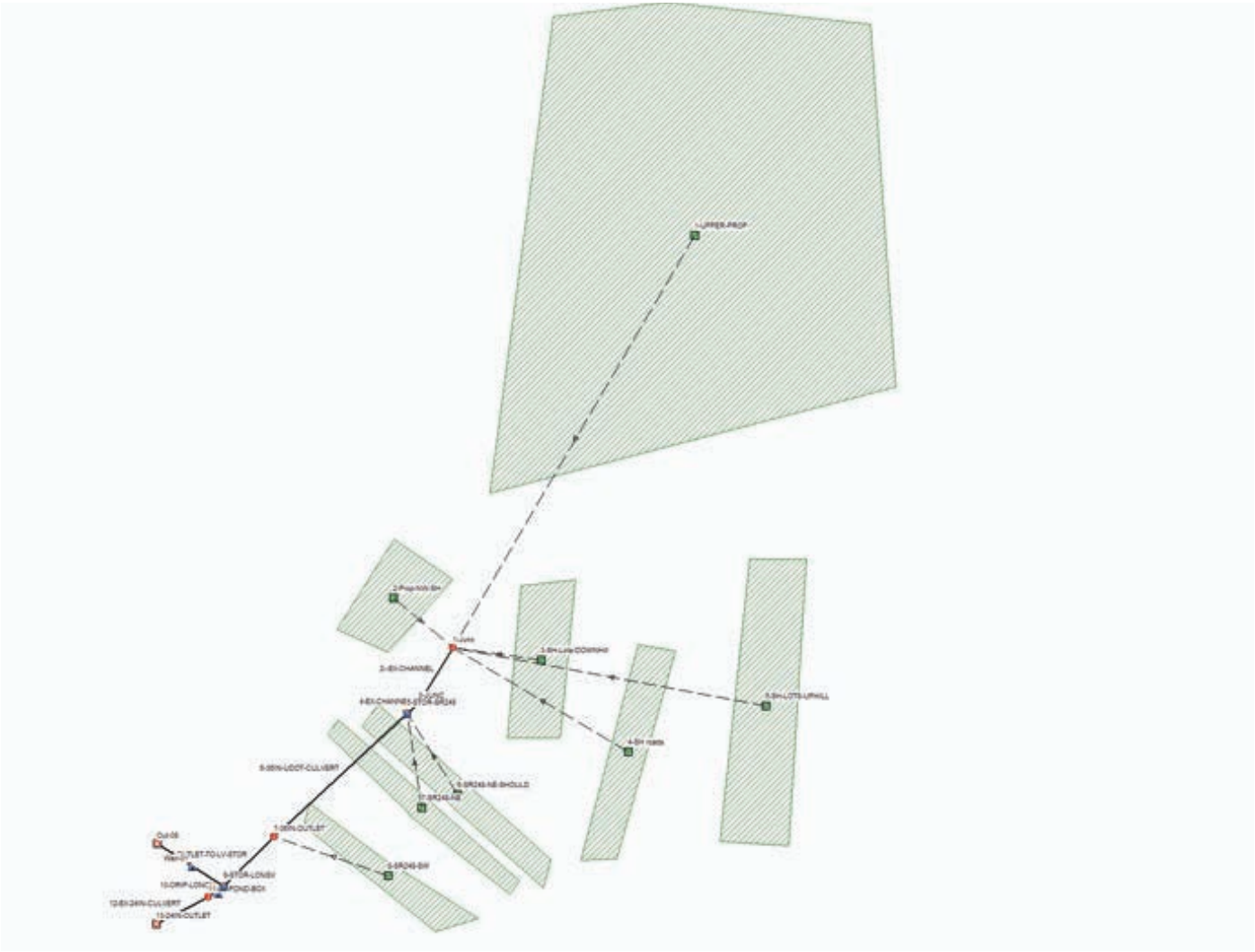
08.11.25
Storm Flow at 36" Highway Culvert Discharge
10 Year TOH 11 CFS
100 Year TOH 30 CFS
with out 17" orifce plate no storage basin

Appendix

10 Year Storm Data
100 Year Storm Data

REGISTERED STRUCTURAL ENGINEER
171360-2203
DAVID W. ERICHSEN
02.11.2025
David W. Erichsen
STATE OF UTAH

MA OF MODE



Autodesk Storm and Sanitary Analysis

10 YEAR STORM DATA

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.268 (Build 0)

```
********************
Project Description
********************
File Name ................. 36 inch 02.10.25.SPF


****************
Analysis Options
****************
Flow Units ................ cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ....... SCS Curve Number
Link Routing Method ....... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date ............. MAR-10-2012 00:00:00
Ending Date ............... MAR-11-2012 00:00:00
Antecedent Dry Days ....... 0.0
Report Time Step .......... 00:05:00
Wet Time Step ............. 00:03:00
Dry Time Step ............. 00:10:00
Routing Time Step ......... 0.50 sec


*************
Element Count
*************
Number of rain gages ...... 5
Number of subbasins ....... 8
Number of nodes ........... 8
Number of links ........... 7
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
Gage                Data                Data       Recording
ID                  Source              Type        Interval
                                                          min
------------------------------------------------------------
Rain Gage-100       TS-01-TYPE II       INTENSITY       6.00
Rain Gage-100TOH    TOH-100             INTENSITY       5.00
Rain Gage-100-TYPEIITS-01-TYPE II       INTENSITY       6.00
Rain Gage-10-TOH    TOH-10              INTENSITY       5.00
Rain Gage-2-TOH     TOH-2               CUMULATIVE      5.00


****************
Subbasin Summary
****************
Subbasin                 Total    Equiv.   Imperv.   Average    Raingage
                          Area     Width      Area     Slope
ID                       acres        ft         %         %
------------------------------------------------------------------------
1-UPPER-PROP             53.00    850.00     17.00   40.0000    Rain Gage-10-TOH
2-Prop-NW-SH              8.00    600.00     10.00   40.0000    Rain Gage-10-TOH
3-SH-Lots-DOWNHill           9.00    160.00     42.00   35.0000    Rain Gage-10-TOH
4-SH roads                2.00     25.00    100.00   10.0000    Rain Gage-10-TOH
5-SH-LOTS-UPHILL         14.00    265.00     25.00   25.0000    Rain Gage-10-TOH
6-SR248-NE-SHOULD         11.60    250.00     15.00   20.0000    Rain Gage-10-TOH
7-SR248-NE                0.65     30.00    100.00   10.0000    Rain Gage-10-TOH
8-SR248-SW                0.34     30.00    100.00   10.0000    Rain Gage-10-TOH
```

```
************
Node Summary
************
Node                Element            Invert   Maximum    Ponded    External
ID                  Type             Elevation     Elev.      Area      Inflow
                                            ft        ft       ft²
-------------------------------------------------------------------------------
11-LV-POND-BOX      JUNCTION           6481.00   6488.00      0.00
1-Junc              JUNCTION           6600.00   6610.00      0.00
3-JUNC              JUNCTION           6584.00   6596.00      0.00
7-36IN-OUTLET       JUNCTION           6494.00   6510.00      0.00
13-24IN-OUTLET      OUTFALL            6480.00   6482.00      0.00
Out-08              OUTFALL            6484.00   6489.50      0.00
5-STOR-SR248        STORAGE            6556.29   6573.00      0.00
9-STOR-LONGV        STORAGE            6484.00   6492.00      0.00


************
Link Summary
************
Link            From Node       To Node         Element         Length     Slope   Manning's
ID                                              Type                ft         %   Roughness
-----------------------------------------------------------------------------------------------
12-EX-24IN-CULVERT11-LV-POND-BOX  13-24IN-OUTLET  CONDUIT           40.0    5.0000      0.0240
2--EX-CHANNEL   1-Junc          3-JUNC          CHANNEL          300.0    5.3333      0.0320
4-EX-CHANNEL    3-JUNC          5-STOR-SR248    CHANNEL          150.0   18.4733      0.0320
6-36IN-UDOT-CULVERT5-STOR-SR248    7-36IN-OUTLET   CONDUIT          365.0   15.7425      0.0240
8-OUTLET-TO-LV-STOR7-36IN-OUTLET   9-STOR-LONGV    CHANNEL           60.0   18.3333      0.0320
10-ORIF-LONGV   9-STOR-LONGV    11-LV-POND-BOX  ORIFICE
Weir-01         9-STOR-LONGV    Out-08          WEIR


*********************
Cross Section Summary
*********************
Link             Shape            Depth/        Width        No. of        Cross    Full Flow
Design
ID                              Diameter                    Barrels    Sectional    Hydraulic
Flow
                                                                           Area       Radius
Capacity
                                      ft           ft                       ft²           ft
cfs

-------------------------------------------------------------------------------------------------
---------
12-EX-24IN-CULVERT CIRCULAR           2.00         2.00             1         3.14         0.50
27.40
2--EX-CHANNEL    TRAPEZOIDAL        1.00        10.00             1         7.00         0.68
57.94
4-EX-CHANNEL     TRAPEZOIDAL        1.00         9.00             1         6.00         0.64
89.26
6-36IN-UDOT-CULVERT CIRCULAR           3.00         3.00             1         7.07
0.75       143.35
8-OUTLET-TO-LV-STOR TRAPEZOIDAL        1.00         6.00             1         4.00
0.62        57.71


*************************        Volume         Depth
Runoff Quantity Continuity       acre-ft        inches
*************************     ---------       -------
Total Precipitation ......         9.144         1.113
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         6.529         0.795
Surface Runoff ...........         1.407         0.171
```

```
Final Surface Storage ....         1.213         0.148
Continuity Error (%) .....        -0.060


**************************        Volume        Volume
Flow Routing Continuity          acre-ft      Mgallons
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         1.409         0.459
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         1.403         0.457
Surface Flooding .........         0.000         0.000
Evaporation Loss .........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.005         0.002
Continuity Error (%) .....         0.045


*****************************************
Composite Curve Number Computations Report
*****************************************

------------------------
Subbasin 1-UPPER-PROP
------------------------
                                                        Area          Soil
Soil/Surface Description                              (acres)        Group          CN
-----------------------------------------------------------------------------------------
Oak & Aspen range, Fair                                 43.99            D       63.00
-                                                        9.01            -       98.00
Composite Area & Weighted CN                            53.00                    68.95

------------------------
Subbasin 2-Prop-NW-SH
------------------------
                                                        Area          Soil
Soil/Surface Description                              (acres)        Group          CN
-----------------------------------------------------------------------------------------
-                                                        1.20            -       98.00
Oak & Aspen range, Fair                                  6.80            D       63.00
Composite Area & Weighted CN                             8.00                    68.25

------------------------------
Subbasin 3-SH-Lots-DOWNHill
------------------------------
                                                        Area          Soil
Soil/Surface Description                              (acres)        Group          CN
-----------------------------------------------------------------------------------------
Oak & Aspen range, Fair                                  5.22            D       63.00
Paved parking & roofs                                    3.78            D       98.00
Composite Area & Weighted CN                             9.00                    77.70

----------------------
Subbasin 4-SH roads
----------------------
                                                        Area          Soil
Soil/Surface Description                              (acres)        Group          CN
-----------------------------------------------------------------------------------------
-                                                        2.00            -       98.00
Composite Area & Weighted CN                             2.00                    98.00

----------------------------
Subbasin 5-SH-LOTS-UPHILL
----------------------------
                                                        Area          Soil
```

Soil/Surface Description	(acres)	Group	CN
Oak & Aspen range, Fair	10.50	D	63.00
Paved parking & roofs	3.50	D	98.00
Composite Area & Weighted CN	14.00		71.75

Subbasin 6-SR248-NE-SHOULD

Soil/Surface Description	Area (acres)	Soil Group	CN
Brush, Fair	9.86	D	77.00
Dirt roads	1.74	D	89.00
Composite Area & Weighted CN	11.60		78.80

Subbasin 7-SR248-NE

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	1.30	B	98.00
Composite Area & Weighted CN	1.30		98.00

Subbasin 8-SR248-SW

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved roads with curbs & sewers	1.20	A	98.00
Composite Area & Weighted CN	1.20		98.00

****
EPA SWMM Time of Concentration Computations Report
****

Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))

Where:

Tc = Time of Concentration (min)
L = Flow Length (ft)
n = Manning's Roughness
i = Rainfall Intensity (in/hr)
S = Slope (ft/ft)

Subbasin 1-UPPER-PROP

Flow length (ft):	2716.19
Pervious Manning's Roughness:	0.30000
Impervious Manning's Roughness:	0.10000
Pervious Rainfall Intensity (in/hr):	0.55650
Impervious Rainfall Intensity (in/hr):	0.55650
Slope (%):	40.00000
Computed TOC (minutes):	93.66

Subbasin 2-Prop-NW-SH

Flow length (ft):	580.82
Pervious Manning's Roughness:	0.20000

```
        Impervious Manning's Roughness:           0.15000
        Pervious Rainfall Intensity (in/hr):      0.55650
        Impervious Rainfall Intensity (in/hr):    0.55650
        Slope (%):                               40.00000
        Computed TOC (minutes):                     29.92

------------------------------
Subbasin 3-SH-Lots-DOWNHill
------------------------------

        Flow length (ft):                         2450.34
        Pervious Manning's Roughness:             0.30000
        Impervious Manning's Roughness:           0.20000
        Pervious Rainfall Intensity (in/hr):      0.55650
        Impervious Rainfall Intensity (in/hr):    0.55650
        Slope (%):                               35.00000
        Computed TOC (minutes):                    101.41

----------------------
Subbasin 4-SH roads
----------------------

        Flow length (ft):                         3484.93
        Pervious Manning's Roughness:             0.10000
        Impervious Manning's Roughness:           0.01500
        Pervious Rainfall Intensity (in/hr):      0.55650
        Impervious Rainfall Intensity (in/hr):    0.55650
        Slope (%):                               10.00000
        Computed TOC (minutes):                     25.47

----------------------------
Subbasin 5-SH-LOTS-UPHILL
----------------------------

        Flow length (ft):                         2301.37
        Pervious Manning's Roughness:             0.10000
        Impervious Manning's Roughness:           0.20000
        Pervious Rainfall Intensity (in/hr):      0.55650
        Impervious Rainfall Intensity (in/hr):    0.55650
        Slope (%):                               25.00000
        Computed TOC (minutes):                     70.67

------------------------------
Subbasin 6-SR248-NE-SHOULD
------------------------------

        Flow length (ft):                         2021.26
        Pervious Manning's Roughness:             0.15000
        Impervious Manning's Roughness:           0.10000
        Pervious Rainfall Intensity (in/hr):      0.55650
        Impervious Rainfall Intensity (in/hr):    0.55650
        Slope (%):                               20.00000
        Computed TOC (minutes):                     68.79

----------------------
Subbasin 7-SR248-NE
----------------------

        Flow length (ft):                          943.83
        Pervious Manning's Roughness:             0.10000
        Impervious Manning's Roughness:           0.01500
        Pervious Rainfall Intensity (in/hr):      0.55650
        Impervious Rainfall Intensity (in/hr):    0.55650
        Slope (%):                               10.00000
        Computed TOC (minutes):                     11.63

----------------------
```

```
  Subbasin 8-SR248-SW
  ----------------------

          Flow length (ft):                          493.70
          Pervious Manning's Roughness:             0.20000
          Impervious Manning's Roughness:           0.01500
          Pervious Rainfall Intensity (in/hr):      0.55650
          Impervious Rainfall Intensity (in/hr):    0.55650
          Slope (%):                               10.00000
          Computed TOC (minutes):                      7.88


  ***********************
  Subbasin Runoff Summary
  ***********************


-------------------------------------------------------------------------------------------------
-------
  Subbasin              Total     Total     Total     Total     Total      Peak       Runoff
Time of
  ID                 Rainfall     Runon     Evap.    Infil.    Runoff    Runoff  Coefficient
Concentration
                          in        in        in        in        in       cfs              days
hh:mm:ss

-------------------------------------------------------------------------------------------------
-------
  1-UPPER-PROP          1.11      0.00      0.00      0.85      0.08      0.73        0.067    0
01:33:39
  2-Prop-NW-SH          1.11      0.00      0.00      0.84      0.09      1.24        0.082    0
00:29:55
  3-SH-Lots-DOWNHill      1.11      0.00      0.00      0.66      0.30      0.85        0.272
0  01:41:24
  4-SH roads            1.11      0.00      0.00      0.00      1.05      2.74        0.942    0
00:25:27
  5-SH-LOTS-UPHILL      1.11      0.00      0.00      0.79      0.26      3.71        0.230    0
01:10:40
  6-SR248-NE-SHOULD      1.11      0.00      0.00      0.82      0.24      3.03        0.212    0
01:08:47
  7-SR248-NE            1.11      0.00      0.00      0.00      1.04      1.39        0.931    0
00:11:37
  8-SR248-SW            1.11      0.00      0.00      0.00      1.06      0.80        0.954    0
00:07:53

-------------------------------------------------------------------------------------------------
-------


  ******************
  Node Depth Summary
  ******************

  ---------------------------------------------------------------------------------------
  Node            Average   Maximum   Maximum   Time of Max     Total     Total   Retention
  ID                Depth     Depth       HGL    Occurrence    Flooded      Time        Time
                 Attained  Attained  Attained                  Volume   Flooded
                       ft        ft        ft   days  hh:mm   acre-in   minutes    hh:mm:ss
  ---------------------------------------------------------------------------------------
  11-LV-POND-BOX     1.13      1.84   6482.84      0  01:35         0         0     0:00:00
  1-Junc             0.06      0.34   6600.34      0  01:20         0         0     0:00:00
  3-JUNC             0.04      0.26   6584.26      0  01:20         0         0     0:00:00
  7-36IN-OUTLET      1.04      1.42   6495.42      0  01:20         0         0     0:00:00
  13-24IN-OUTLET     0.16      0.75   6480.75      0  01:35         0         0     0:00:00
  Out-08             0.00      0.00   6484.00      0  00:00         0         0     0:00:00
  5-STOR-SR248       0.20      1.19   6557.48      0  01:23         0         0     0:00:00
  9-STOR-LONGV       0.25      1.81   6485.81      0  01:35         0         0     0:00:00
```

```
*****************
Node Flow Summary
*****************

-------------------------------------------------------------------------------------
Node                 Element     Maximum     Peak      Time of   Maximum Time of Peak
ID                     Type      Lateral   Inflow  Peak Inflow  Flooding     Flooding
                                  Inflow            Occurrence  Overflow   Occurrence
                                     cfs      cfs  days  hh:mm       cfs  days  hh:mm
-------------------------------------------------------------------------------------
11-LV-POND-BOX       JUNCTION      0.00     8.15     0  01:35      0.00
1-Junc               JUNCTION      7.25     7.25     0  01:20      0.00
3-JUNC               JUNCTION      0.00     7.22     0  01:20      0.00
7-36IN-OUTLET        JUNCTION      0.80    10.78     0  01:23      0.00
13-24IN-OUTLET       OUTFALL       0.00     8.15     0  01:35      0.00
Out-08               OUTFALL       0.00     0.00     0  00:00      0.00
5-STOR-SR248         STORAGE       4.42    11.15     0  01:20      0.00
9-STOR-LONGV         STORAGE       0.00    10.66     0  01:20      0.00


********************
Storage Node Summary
********************


-------------------------------------------------------------------------------------------------------
-------------------------------------
  Storage Node ID        Maximum     Maximum    Time of Max    Average   Average       Maximum
Maximum  Time of Max.        Total
                         Ponded      Ponded         Ponded     Ponded    Ponded  Storage Node
Exfiltration  Exfiltration  Exfiltrated
                         Volume      Volume         Volume     Volume    Volume       Outflow
Rate          Rate       Volume
                        1000 ft³         (%)     days hh:mm   1000 ft³       (%)           cfs
cfm      hh:mm:ss     1000 ft³

-------------------------------------------------------------------------------------------------------
-------------------------------------
  5-STOR-SR248             1.588           1       0  01:23      0.221         0         10.35
0.00       0:00:00        0.000
  9-STOR-LONGV             5.255           8       0  01:35      0.576         1          8.15
0.00       0:00:00        0.000


************************
Outfall Loading Summary
************************

-------------------------------------------------
Outfall Node ID        Flow   Average      Peak
                  Frequency      Flow    Inflow
                        (%)       cfs       cfs
-------------------------------------------------
13-24IN-OUTLET        95.86      0.74      8.15
Out-08                 0.00      0.00      0.00
-------------------------------------------------
System                47.93      0.74      8.15


*****************
Link Flow Summary
*****************


-------------------------------------------------------------------------------------------------------
```

```
-------------------------------
  Link ID              Element       Time of   Maximum  Length   Peak Flow      Design  Ratio of
Ratio of       Total  Reported
                        Type        Peak Flow  Velocity  Factor      during        Flow   Maximum
Maximum        Time  Condition
                                   Occurrence  Attained            Analysis    Capacity   /Design
Flow  Surcharged
                                   days hh:mm    ft/sec                 cfs         cfs      Flow
Depth     minutes

-------------------------------------------------------------------------------------------------
-------------------------------
  12-EX-24IN-CULVERT   CONDUIT      0  01:35      6.99    1.00        8.15       27.40      0.30
0.40           0  Calculated
  2--EX-CHANNEL        CHANNEL      0  01:20      4.86    1.00        7.22       57.94      0.12
0.30           0  Calculated
  4-EX-CHANNEL         CHANNEL      0  01:20      2.71    1.00        7.19       89.26      0.08
0.63           0  Calculated
  6-36IN-UDOT-CULVERT  CONDUIT      0  01:23      6.24    1.00       10.35      143.35      0.07
0.29           0  Calculated
  8-OUTLET-TO-LV-STOR  CHANNEL      0  01:20      5.93    1.00       10.66       57.71      0.18
0.71           0  Calculated
  10-ORIF-LONGV        ORIFICE      0  01:35                          8.15
1.00
  Weir-01              WEIR         0  00:00                          0.00
0.00


  ***************************
  Flow Classification Summary
  ***************************

  ---------------------------------------------------------------------------
                    --- Fraction of Time in Flow Class ----   Avg.     Avg.
                        Up    Down  Sub   Sup   Up    Down   Froude   Flow
  Link              Dry  Dry   Dry   Crit  Crit  Crit  Crit   Number   Change
  ---------------------------------------------------------------------------
  12-EX-24IN-CULVERT  0.04  0.00  0.00  0.00  0.96  0.00  0.00     1.46   0.0000
  2--EX-CHANNEL     0.00  0.00  0.00  0.00  0.99  0.00  0.00     1.23   0.0000
  4-EX-CHANNEL      0.01  0.00  0.00  0.99  0.00  0.00  0.00     0.42   0.0000
  6-36IN-UDOT-CULVERT  0.01  0.00  0.00  0.00  0.00  0.00  0.99     1.51   0.0003
  8-OUTLET-TO-LV-STOR  0.02  0.00  0.00  0.94  0.04  0.00  0.00     0.62   0.0000


  ***************************
  Time-Step Critical Elements
  ***************************
  None


  *********************************
  Highest Flow Instability Indexes
  *********************************
  Link 8-OUTLET-TO-LV-STOR (5)
  Link 6-36IN-UDOT-CULVERT (3)


  *************************
  Routing Time Step Summary
  *************************
  Minimum Time Step           :     0.50 sec
  Average Time Step           :     0.50 sec
  Maximum Time Step           :     0.50 sec
  Percent in Steady State     :     0.00
  Average Iterations per Step :     2.00
```

```
Analysis began on:  Tue Feb 11 15:47:24 2025
Analysis ended on:  Tue Feb 11 15:47:26 2025
Total elapsed time: 00:00:02
```

100 YEAR STORM DATA

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.268 (Build 0)

****
Project Description
****
File Name ..... 36 inch culvert basin 02.10.25.SPF

****
Analysis Options
****
Flow Units ..... cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ..... SCS Curve Number
Link Routing Method ..... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date MAR-10-2012 00:00:00
Ending Date MAR-11-2012 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:05:00
Wet Time Step 00:03:00
Dry Time Step 00:10:00
Routing Time Step ..... 0.50 sec

****
Element Count
****
Number of rain gages 5
Number of subbasins 8
Number of nodes 8
Number of links 7
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Gage ID	Data Source	Data Type	Recording Interval min
Rain Gage-100	TS-01-TYPE II	INTENSITY	6.00
Rain Gage-100TOH	TOH-100	INTENSITY	5.00
Rain Gage-100-TYPEII	TS-01-TYPE II	INTENSITY	6.00
Rain Gage-10-TOH	TOH-10	INTENSITY	5.00
Rain Gage-2-TOH	TOH-2	CUMULATIVE	5.00

****
Subbasin Summary
****

Subbasin ID	Total Area acres	Equiv. Width ft	Imperv. Area %	Average Slope %	Raingage
1-UPPER-PROP	53.00	850.00	17.00	40.0000	Rain Gage-100TOH
2-Prop-NW-SH	8.00	600.00	10.00	40.0000	Rain Gage-100TOH
3-SH-Lots-DOWNHill	9.00	160.00	42.00	35.0000	Rain Gage-100TOH
4-SH roads	2.00	25.00	100.00	10.0000	Rain Gage-100TOH
5-SH-LOTS-UPHILL	14.00	265.00	25.00	25.0000	Rain Gage-100TOH
6-SR248-NE-SHOULD	11.60	250.00	15.00	20.0000	Rain Gage-100TOH
7-SR248-NE	0.65	30.00	100.00	10.0000	Rain Gage-100TOH
8-SR248-SW	0.34	30.00	100.00	10.0000	Rain Gage-100TOH

```
************
Node Summary
************
Node                Element            Invert   Maximum    Ponded    External
ID                  Type             Elevation     Elev.      Area      Inflow
                                            ft        ft       ft²
-------------------------------------------------------------------------------
11-LV-POND-BOX      JUNCTION           6481.00   6488.00      0.00
1-Junc              JUNCTION           6600.00   6610.00      0.00
3-JUNC              JUNCTION           6584.00   6596.00      0.00
7-36IN-OUTLET       JUNCTION           6494.00   6510.00      0.00
13-24IN-OUTLET      OUTFALL            6480.00   6482.00      0.00
Out-08              OUTFALL            6484.00   6489.50      0.00
5-STOR-SR248        STORAGE            6556.29   6573.00      0.00
9-STOR-LONGV        STORAGE            6484.00   6492.00      0.00


************
Link Summary
************
Link            From Node       To Node         Element         Length     Slope   Manning's
ID                                              Type                ft         %   Roughness
-----------------------------------------------------------------------------------------------
12-EX-24IN-CULVERT11-LV-POND-BOX  13-24IN-OUTLET  CONDUIT           40.0    5.0000      0.0240
2--EX-CHANNEL   1-Junc          3-JUNC          CHANNEL          300.0    5.3333      0.0320
4-EX-CHANNEL    3-JUNC          5-STOR-SR248    CHANNEL          150.0   18.4733      0.0320
6-36IN-UDOT-CULVERT5-STOR-SR248    7-36IN-OUTLET   CONDUIT          365.0   15.7425      0.0240
8-OUTLET-TO-LV-STOR7-36IN-OUTLET   9-STOR-LONGV    CHANNEL           60.0   18.3333      0.0320
10-ORIF-LONGV   9-STOR-LONGV    11-LV-POND-BOX  ORIFICE
Weir-01         9-STOR-LONGV    Out-08          WEIR


*********************
Cross Section Summary
*********************
Link             Shape            Depth/        Width        No. of        Cross    Full Flow
Design
ID                              Diameter                   Barrels    Sectional    Hydraulic
Flow
                                                                          Area       Radius
Capacity
                                      ft           ft                      ft²           ft
cfs

-------------------------------------------------------------------------------------------------
---------
12-EX-24IN-CULVERT CIRCULAR           2.00         2.00             1         3.14         0.50
27.40
2--EX-CHANNEL    TRAPEZOIDAL        1.00        10.00             1         7.00         0.68
57.94
4-EX-CHANNEL     TRAPEZOIDAL        1.00         9.00             1         6.00         0.64
89.26
6-36IN-UDOT-CULVERT CIRCULAR           3.00         3.00             1         7.07
0.75       143.35
8-OUTLET-TO-LV-STOR TRAPEZOIDAL        1.00         6.00             1         4.00
0.62        57.71


*************************        Volume         Depth
Runoff Quantity Continuity       acre-ft        inches
*************************     ---------       -------
Total Precipitation ......        16.125         1.963
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         9.631         1.172
Surface Runoff ...........         5.282         0.643
```

Final Surface Storage	1.228	0.149
Continuity Error (%)	-0.095	

********** Flow Routing Continuity **********	Volume acre-ft	Volume Mgallons
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	5.287	1.723
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	5.280	1.720
Surface Flooding	0.000	0.000
Evaporation Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.006	0.002
Continuity Error (%)	0.032	

****
Composite Curve Number Computations Report
****

Subbasin 1-UPPER-PROP

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	43.99	D	63.00
-	9.01	-	98.00
Composite Area & Weighted CN	53.00		68.95

Subbasin 2-Prop-NW-SH

Soil/Surface Description	Area (acres)	Soil Group	CN
-	1.20	-	98.00
Oak & Aspen range, Fair	6.80	D	63.00
Composite Area & Weighted CN	8.00		68.25

Subbasin 3-SH-Lots-DOWNHill

Soil/Surface Description	Area (acres)	Soil Group	CN
Oak & Aspen range, Fair	5.22	D	63.00
Paved parking & roofs	3.78	D	98.00
Composite Area & Weighted CN	9.00		77.70

Subbasin 4-SH roads

Soil/Surface Description	Area (acres)	Soil Group	CN
-	2.00	-	98.00
Composite Area & Weighted CN	2.00		98.00

Subbasin 5-SH-LOTS-UPHILL

	Area	Soil

Soil/Surface Description	(acres)	Group	CN
Oak & Aspen range, Fair	10.50	D	63.00
Paved parking & roofs	3.50	D	98.00
Composite Area & Weighted CN	14.00		71.75

Subbasin 6-SR248-NE-SHOULD

Soil/Surface Description	Area (acres)	Soil Group	CN
Brush, Fair	9.86	D	77.00
Dirt roads	1.74	D	89.00
Composite Area & Weighted CN	11.60		78.80

Subbasin 7-SR248-NE

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved parking & roofs	1.30	B	98.00
Composite Area & Weighted CN	1.30		98.00

Subbasin 8-SR248-SW

Soil/Surface Description	Area (acres)	Soil Group	CN
Paved roads with curbs & sewers	1.20	A	98.00
Composite Area & Weighted CN	1.20		98.00

****
EPA SWMM Time of Concentration Computations Report
****

Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))

Where:

Tc = Time of Concentration (min)
L = Flow Length (ft)
n = Manning's Roughness
i = Rainfall Intensity (in/hr)
S = Slope (ft/ft)

Subbasin 1-UPPER-PROP

Flow length (ft):	2716.19
Pervious Manning's Roughness:	0.30000
Impervious Manning's Roughness:	0.10000
Pervious Rainfall Intensity (in/hr):	0.98133
Impervious Rainfall Intensity (in/hr):	0.98133
Slope (%):	40.00000
Computed TOC (minutes):	74.64

Subbasin 2-Prop-NW-SH

Flow length (ft):	580.82
Pervious Manning's Roughness:	0.20000

```
        Impervious Manning's Roughness:           0.15000
        Pervious Rainfall Intensity (in/hr):      0.98133
        Impervious Rainfall Intensity (in/hr):    0.98133
        Slope (%):                               40.00000
        Computed TOC (minutes):                     23.85

------------------------------
Subbasin 3-SH-Lots-DOWNHill
------------------------------

        Flow length (ft):                         2450.34
        Pervious Manning's Roughness:             0.30000
        Impervious Manning's Roughness:           0.20000
        Pervious Rainfall Intensity (in/hr):      0.98133
        Impervious Rainfall Intensity (in/hr):    0.98133
        Slope (%):                               35.00000
        Computed TOC (minutes):                     80.81

----------------------
Subbasin 4-SH roads
----------------------

        Flow length (ft):                         3484.93
        Pervious Manning's Roughness:             0.10000
        Impervious Manning's Roughness:           0.01500
        Pervious Rainfall Intensity (in/hr):      0.98133
        Impervious Rainfall Intensity (in/hr):    0.98133
        Slope (%):                               10.00000
        Computed TOC (minutes):                     20.29

----------------------------
Subbasin 5-SH-LOTS-UPHILL
----------------------------

        Flow length (ft):                         2301.37
        Pervious Manning's Roughness:             0.10000
        Impervious Manning's Roughness:           0.20000
        Pervious Rainfall Intensity (in/hr):      0.98133
        Impervious Rainfall Intensity (in/hr):    0.98133
        Slope (%):                               25.00000
        Computed TOC (minutes):                     56.32

-----------------------------
Subbasin 6-SR248-NE-SHOULD
-----------------------------

        Flow length (ft):                         2021.26
        Pervious Manning's Roughness:             0.15000
        Impervious Manning's Roughness:           0.10000
        Pervious Rainfall Intensity (in/hr):      0.98133
        Impervious Rainfall Intensity (in/hr):    0.98133
        Slope (%):                               20.00000
        Computed TOC (minutes):                     54.82

----------------------
Subbasin 7-SR248-NE
----------------------

        Flow length (ft):                          943.83
        Pervious Manning's Roughness:             0.10000
        Impervious Manning's Roughness:           0.01500
        Pervious Rainfall Intensity (in/hr):      0.98133
        Impervious Rainfall Intensity (in/hr):    0.98133
        Slope (%):                               10.00000
        Computed TOC (minutes):                      9.27

----------------------
```

Subbasin 8-SR248-SW

Flow length (ft):	493.70
Pervious Manning's Roughness:	0.20000
Impervious Manning's Roughness:	0.01500
Pervious Rainfall Intensity (in/hr):	0.98133
Impervious Rainfall Intensity (in/hr):	0.98133
Slope (%):	10.00000
Computed TOC (minutes):	6.28

****
Subbasin Runoff Summary
****

Subbasin ID	Total Rainfall in	Total Runon in	Total Evap. in	Total Infil. in	Total Runoff in	Peak Runoff cfs	Runoff Coefficient	Time of Concentration days hh:mm:ss
1-UPPER-PROP	1.96	0.00	0.00	1.28	0.49	8.78	0.250	0 01:14:38
2-Prop-NW-SH	1.96	0.00	0.00	1.28	0.50	3.04	0.254	0 00:23:50
3-SH-Lots-DOWNHill	1.96	0.00	0.00	0.89	0.91	4.18	0.466	0 01:20:48
4-SH roads	1.96	0.00	0.00	0.00	1.90	6.21	0.968	0 00:20:17
5-SH-LOTS-UPHILL	1.96	0.00	0.00	1.15	0.75	9.44	0.380	0 00:56:19
6-SR248-NE-SHOULD	1.96	0.00	0.00	1.13	0.77	7.19	0.395	0 00:54:49
7-SR248-NE	1.96	0.00	0.00	0.00	1.89	2.93	0.964	0 00:09:16
8-SR248-SW	1.96	0.00	0.00	0.00	1.92	1.68	0.979	0 00:06:16

****
Node Depth Summary
****

Node ID	Average Depth Attained ft	Maximum Depth Attained ft	Maximum HGL Attained ft	Time of Max Occurrence days	hh:mm	Total Flooded Volume acre-in	Total Time Flooded minutes	Retention Time hh:mm:ss
11-LV-POND-BOX	1.26	2.34	6483.34	0	01:52	0	0	0:00:00
1-Junc	0.11	0.66	6600.66	0	01:35	0	0	0:00:00
3-JUNC	0.09	0.51	6584.51	0	01:35	0	0	0:00:00
7-36IN-OUTLET	1.11	1.84	6495.84	0	01:40	0	0	0:00:00
13-24IN-OUTLET	0.27	1.12	6481.12	0	01:52	0	0	0:00:00
Out-08	0.00	0.00	6484.00	0	00:00	0	0	0:00:00
5-STOR-SR248	0.39	2.61	6558.90	0	01:36	0	0	0:00:00
9-STOR-LONGV	0.72	5.16	6489.16	0	01:52	0	0	0:00:00

```
*****************
Node Flow Summary
*****************

-------------------------------------------------------------------------------------
Node                 Element     Maximum     Peak      Time of   Maximum Time of Peak
ID                     Type      Lateral   Inflow  Peak Inflow  Flooding     Flooding
                                  Inflow            Occurrence  Overflow   Occurrence
                                     cfs      cfs  days  hh:mm       cfs  days  hh:mm
-------------------------------------------------------------------------------------
11-LV-POND-BOX       JUNCTION      0.00    16.39     0  01:52      0.00
1-Junc               JUNCTION     23.51    23.51     0  01:35      0.00
3-JUNC               JUNCTION      0.00    23.49     0  01:35      0.00
7-36IN-OUTLET        JUNCTION      1.68    29.52     0  01:36      0.00
13-24IN-OUTLET       OUTFALL       0.00    16.39     0  01:52      0.00
Out-08               OUTFALL       0.00    10.86     0  01:52      0.00
5-STOR-SR248         STORAGE      10.12    29.54     0  01:30      0.00
9-STOR-LONGV         STORAGE       0.00    29.51     0  01:36      0.00


********************
Storage Node Summary
********************


-------------------------------------------------------------------------------------------------------
-------------------------------------
  Storage Node ID        Maximum     Maximum    Time of Max    Average   Average       Maximum
Maximum  Time of Max.        Total
                         Ponded      Ponded         Ponded     Ponded    Ponded  Storage Node
Exfiltration  Exfiltration  Exfiltrated
                         Volume      Volume         Volume     Volume    Volume       Outflow
Rate          Rate       Volume
                        1000 ft³         (%)     days hh:mm   1000 ft³       (%)           cfs
cfm      hh:mm:ss     1000 ft³

-------------------------------------------------------------------------------------------------------
-------------------------------------
  5-STOR-SR248             4.486           2       0  01:36      0.516         0         29.18
0.00       0:00:00        0.000
  9-STOR-LONGV            25.010          39       0  01:52      2.667         4         27.25
0.00       0:00:00        0.000


************************
Outfall Loading Summary
************************

-------------------------------------------------
Outfall Node ID        Flow   Average      Peak
                  Frequency      Flow    Inflow
                        (%)       cfs       cfs
-------------------------------------------------
13-24IN-OUTLET        96.05      2.40     16.39
Out-08                 6.42      5.55     10.86
-------------------------------------------------
System                51.24      7.95     27.25


*****************
Link Flow Summary
*****************


-------------------------------------------------------------------------------------------------------
```

```
-------------------------------
  Link ID              Element       Time of   Maximum  Length   Peak Flow      Design  Ratio of
Ratio of       Total  Reported
                        Type        Peak Flow  Velocity  Factor      during        Flow   Maximum
Maximum        Time  Condition
                                   Occurrence  Attained            Analysis    Capacity   /Design
Flow  Surcharged
                                   days hh:mm    ft/sec                 cfs         cfs      Flow
Depth     minutes

-------------------------------------------------------------------------------------------------
-------------------------------
  12-EX-24IN-CULVERT   CONDUIT      0  01:52      8.13    1.00       16.39       27.40      0.60
0.61           0  Calculated
  2--EX-CHANNEL        CHANNEL      0  01:35      7.03    1.00       23.49       57.94      0.41
0.58           0  Calculated
  4-EX-CHANNEL         CHANNEL      0  01:35      5.93    1.00       23.47       89.26      0.26
0.75           0  Calculated
  6-36IN-UDOT-CULVERT  CONDUIT      0  01:36      7.07    1.00       29.18      143.35      0.20
0.59           0  Calculated
  8-OUTLET-TO-LV-STOR  CHANNEL      0  01:36      8.48    1.00       29.51       57.71      0.51
0.92           0  Calculated
  10-ORIF-LONGV        ORIFICE      0  01:52                          16.39
1.00
  Weir-01              WEIR         0  01:52                          10.86
0.66


  ***************************
  Flow Classification Summary
  ***************************

  ---------------------------------------------------------------------------
                    --- Fraction of Time in Flow Class ----   Avg.     Avg.
                        Up    Down  Sub   Sup   Up    Down   Froude   Flow
  Link              Dry  Dry   Dry   Crit  Crit  Crit  Crit   Number   Change
  ---------------------------------------------------------------------------
  12-EX-24IN-CULVERT  0.04  0.00  0.00  0.00  0.96  0.00  0.00     1.47   0.0000
  2--EX-CHANNEL     0.00  0.00  0.00  0.00  0.99  0.00  0.00     1.32   0.0000
  4-EX-CHANNEL      0.01  0.00  0.00  0.93  0.06  0.00  0.00     0.52   0.0000
  6-36IN-UDOT-CULVERT  0.01  0.00  0.00  0.00  0.00  0.00  0.99     1.47   0.0001
  8-OUTLET-TO-LV-STOR  0.02  0.00  0.00  0.85  0.12  0.00  0.00     0.71   0.0000


  ***************************
  Time-Step Critical Elements
  ***************************
  None


  *********************************
  Highest Flow Instability Indexes
  *********************************
  Link 8-OUTLET-TO-LV-STOR (3)
  Link 6-36IN-UDOT-CULVERT (2)


  *************************
  Routing Time Step Summary
  *************************
  Minimum Time Step           :     0.50 sec
  Average Time Step           :     0.50 sec
  Maximum Time Step           :     0.50 sec
  Percent in Steady State     :     0.00
  Average Iterations per Step :     2.00
```

```
Analysis began on:  Tue Feb 11 15:06:36 2025
Analysis ended on:  Tue Feb 11 15:06:38 2025
Total elapsed time: 00:00:02
```

Storm Water Drainage Draft Report

Deadman Gulch
Hideout, Utah

This report analysis the subbasins that flow into Deadman Gulch and subsequently in the existing 42” corrugated metal pipe.

Storm Water Design criteria requiring the use of a 100 year storm in the analysis is not specified in the governing code. Developer elected to complete the Analysis using the 3 Hour 100-year storm distribution proposed by the Town of Hideout (RG-TOH-100).

The associated Peak Flow, at the outlet of the existing 42” culvert under the highway, from the analysis is 109 CFS.

I understand that the Town of Hideout does not and will not assume liability for the drainage facilities design.

Prepared by

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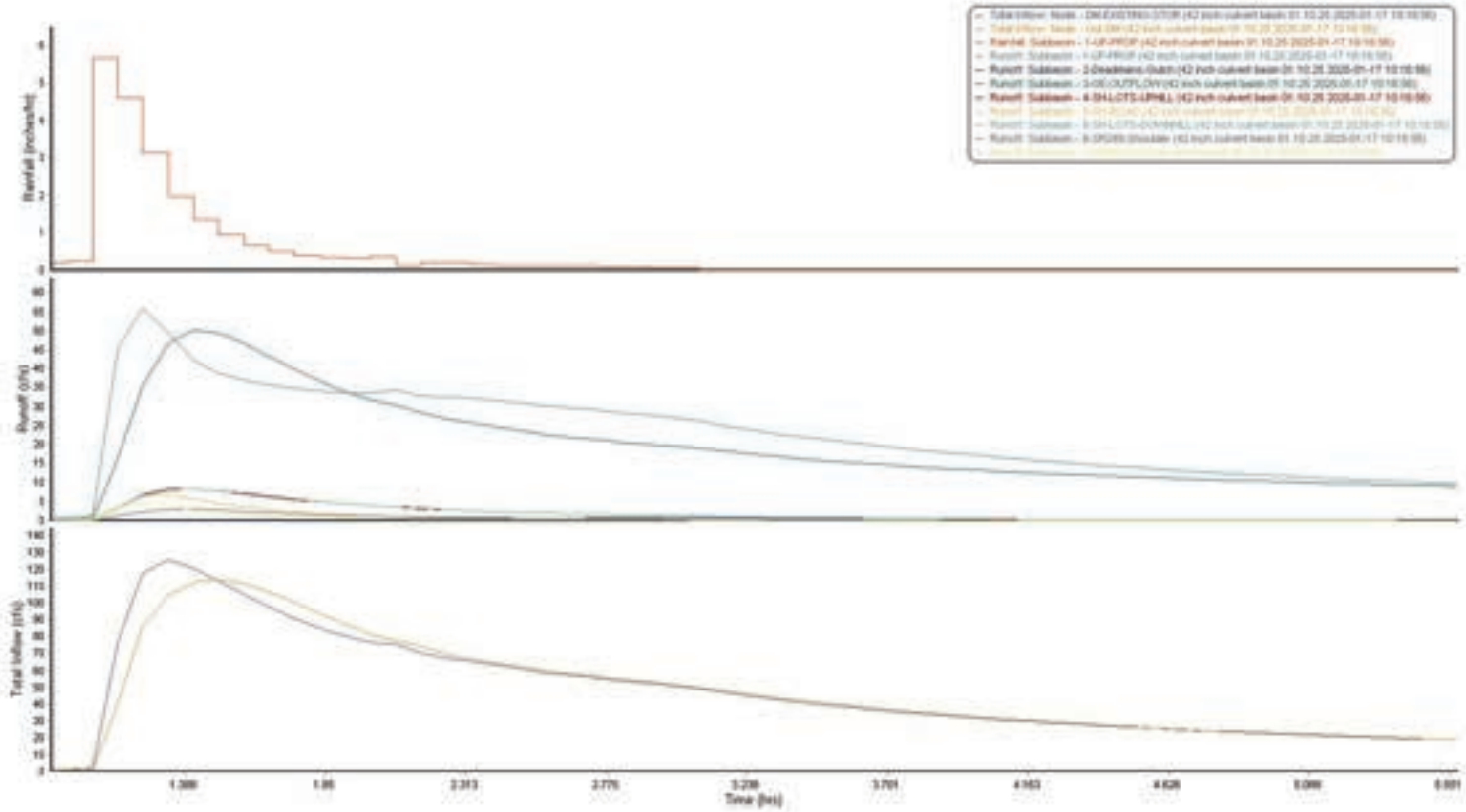
REGISTERED STRUCTURAL ENGINEER
171360-2203
DAVID W. ERICHSEN
STATE OF UTAH
01/17/25



Autodesk Storm and Sanitary Analysis

Autodesk® Storm and Sanitary Analysis 2024 - Version 13.6.268 (Build 0)

```
*******************
Project Description
*******************
File Name ................. 42 inch culvert basin 01.10.25.SPF


****************
Analysis Options
****************
Flow Units ................ cfs
Subbasin Hydrograph Method. EPA SWMM
Infiltration Method ....... SCS Curve Number
Link Routing Method ....... Hydrodynamic
Storage Node Exfiltration.. None
Starting Date ............. MAR-10-2012 00:00:00
Ending Date ............... MAR-11-2012 00:00:00
Antecedent Dry Days ....... 0.0
Report Time Step .......... 00:05:00
Wet Time Step ............. 00:03:00
Dry Time Step ............. 01:00:00
Routing Time Step ......... 0.50 sec


*************
Element Count
*************
Number of rain gages ...... 7
Number of subbasins ....... 8
Number of nodes ........... 2
Number of links ........... 1
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
Gage                Data                Data       Recording
ID                  Source              Type        Interval
                                                          min
-------------------------------------------------------------
RG-100-2            TS-100-2            INTENSITY       6.00
RG-100YR-1          TS-100-1            CUMULATIVE      6.00
RG-10-1             1 YR                CUMULATIVE      6.00
RG-10-2             TS-10-2             CUMULATIVE      6.00
RG-10-TOH           TS-TOH-10           INTENSITY       5.00
RG-2-TOH            TS-TOH-2            INTENSITY       5.00
RG-TOH-100          TS-100-TOH          INTENSITY       5.00


****************
Subbasin Summary
****************
Subbasin                 Total    Equiv.   Imperv.   Average    Raingage
                          Area     Width      Area     Slope
ID                       acres        ft         %         %
-----------------------------------------------------------------------
1-UP-PROP               208.00   1205.00     30.00   42.0000    RG-TOH-100
2-Deadmans-Gulch         106.00    801.00      0.00   40.0000    RG-TOH-100
3-GE-OUTFLOW            180.00   1100.00     40.00    0.5000    RG-TOH-100
4-SH-LOTS-UPHILL           7.30    170.00     49.00   30.0000    RG-TOH-100
5-SH-ROAD                 2.20     25.00    100.00   10.0000    RG-TOH-100
6-SH-LOTS-DOWNHILL           6.80    150.00     54.00   30.0000    RG-TOH-100
```

```
6-SR248-Shoulder           1.52     40.00    100.00   45.0000    RG-TOH-100
7-SR248                   1.14     30.00    100.00   11.0000    RG-TOH-100


************
Node Summary
************
Node                Element            Invert   Maximum    Ponded    External
ID                  Type             Elevation     Elev.      Area      Inflow
                                            ft        ft       ft²
-----------------------------------------------------------------------------
Out-DM              OUTFALL            6462.80   6466.30      0.00
DM-EXISTING-STOR    STORAGE            6571.72   6590.00      0.00


************
Link Summary
************
Link            From Node       To Node         Element         Length     Slope   Manning's
ID                                              Type                ft         %   Roughness
-----------------------------------------------------------------------------------------------
Link-05         DM-EXISTING-STOROut-DM          CONDUIT          922.0   11.8136      0.0240


*********************
Cross Section Summary
*********************
Link             Shape            Depth/        Width        No. of        Cross    Full Flow
Design
ID                              Diameter                   Barrels    Sectional    Hydraulic
Flow
                                                                           Area       Radius
Capacity
                                     ft           ft                        ft²           ft
cfs

-----------------------------------------------------------------------------------------------------------
---------
Link-05          CIRCULAR           3.50         3.50             1         9.62         0.88
187.31


*************************        Volume         Depth
Runoff Quantity Continuity       acre-ft        inches
*************************     ---------       -------
Total Precipitation ......        83.912         1.963
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........        48.689         1.139
Surface Runoff ...........        26.648         0.623
Final Surface Storage ....         8.663         0.203
Continuity Error (%) .....        -0.104


*************************        Volume        Volume
Flow Routing Continuity          acre-ft      Mgallons
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        26.663         8.689
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........        26.662         8.688
Surface Flooding .........         0.000         0.000
Evaporation Loss .........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.014         0.004
Continuity Error (%) .....        -0.046
```

```
*****************************************
Composite Curve Number Computations Report
*****************************************

---------------------
Subbasin 1-UP-PROP
---------------------
                                                    Area          Soil
Soil/Surface Description                           (acres)        Group          CN
-----------------------------------------------------------------------------------
Oak & Aspen range, Fair                             145.60            D       63.00
-                                                    41.60            -       98.00
Paved parking & roofs                                20.80            D       98.00
Composite Area & Weighted CN                        208.00                    73.50

----------------------------
Subbasin 2-Deadmans-Gulch
----------------------------
                                                    Area          Soil
Soil/Surface Description                           (acres)        Group          CN
-----------------------------------------------------------------------------------
Oak & Aspen range, Fair                             106.00            C       60.00
Composite Area & Weighted CN                        106.00                    60.00

------------------------
Subbasin 3-GE-OUTFLOW
------------------------
                                                    Area          Soil
Soil/Surface Description                           (acres)        Group          CN
-----------------------------------------------------------------------------------
Oak & Aspen range, Fair                             108.00            D       63.00
Paved parking & roofs                                72.00            B       98.00
Composite Area & Weighted CN                        180.00                    77.00

----------------------------
Subbasin 4-SH-LOTS-UPHILL
----------------------------
                                                    Area          Soil
Soil/Surface Description                           (acres)        Group          CN
-----------------------------------------------------------------------------------
Paved parking & roofs                                 3.58            D       98.00
Oak & Aspen range, Fair                               3.72            D       63.00
Composite Area & Weighted CN                          7.30                    80.15

---------------------
Subbasin 5-SH-ROAD
---------------------
                                                    Area          Soil
Soil/Surface Description                           (acres)        Group          CN
-----------------------------------------------------------------------------------
Paved parking & roofs                                 2.20            D       98.00
Composite Area & Weighted CN                          2.20                    98.00

------------------------------
Subbasin 6-SH-LOTS-DOWNHILL
------------------------------
                                                    Area          Soil
Soil/Surface Description                           (acres)        Group          CN
-----------------------------------------------------------------------------------
Paved parking & roofs                                 3.67            D       98.00
Oak & Aspen range, Fair                               3.13            D       63.00
Composite Area & Weighted CN                          6.80                    81.90

----------------------------
Subbasin 6-SR248-Shoulder
```

```
----------------------------
                                                          Area          Soil
Soil/Surface Description                                (acres)        Group          CN
-----------------------------------------------------------------------------------------
Sagebrush range, Fair                                      4.00            D       70.00
Composite Area & Weighted CN                               4.00                    70.00

-------------------
Subbasin 7-SR248
-------------------
                                                          Area          Soil
Soil/Surface Description                                (acres)        Group          CN
-----------------------------------------------------------------------------------------
Paved parking & roofs                                      1.14            D       98.00
Composite Area & Weighted CN                               1.14                    98.00


**************************************************
EPA SWMM Time of Concentration Computations Report
**************************************************

        Tc = (0.94 * (L^0.6) * (n^0.6)) / ((i^0.4) * (S^0.3))

        Where:

        Tc = Time of Concentration (min)
        L  = Flow Length (ft)
        n  = Manning's Roughness
        i  = Rainfall Intensity (in/hr)
        S  = Slope (ft/ft)

---------------------
Subbasin 1-UP-PROP
---------------------

        Flow length (ft):                          7519.35
        Pervious Manning's Roughness:              0.30000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                42.00000
        Computed TOC (minutes):                     105.71

----------------------------
Subbasin 2-Deadmans-Gulch
----------------------------

        Flow length (ft):                          5764.71
        Pervious Manning's Roughness:              0.60000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                40.00000
        Computed TOC (minutes):                     165.62

------------------------
Subbasin 3-GE-OUTFLOW
------------------------

        Flow length (ft):                          7128.26
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                 0.50000
        Computed TOC (minutes):                     188.95
```

```
----------------------------
Subbasin 4-SH-LOTS-UPHILL
----------------------------

        Flow length (ft):                          1870.59
        Pervious Manning's Roughness:              0.15000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                30.00000
        Computed TOC (minutes):                      57.69

---------------------
Subbasin 5-SH-ROAD
---------------------

        Flow length (ft):                          3833.42
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                10.00000
        Computed TOC (minutes):                      21.49

------------------------------
Subbasin 6-SH-LOTS-DOWNHILL
------------------------------

        Flow length (ft):                          1974.79
        Pervious Manning's Roughness:              0.15000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                30.00000
        Computed TOC (minutes):                      59.87

----------------------------
Subbasin 6-SR248-Shoulder
----------------------------

        Flow length (ft):                          1655.34
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.20000
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                45.00000
        Computed TOC (minutes):                      39.12

-------------------
Subbasin 7-SR248
-------------------

        Flow length (ft):                          1655.34
        Pervious Manning's Roughness:              0.10000
        Impervious Manning's Roughness:            0.01500
        Pervious Rainfall Intensity (in/hr):       0.98150
        Impervious Rainfall Intensity (in/hr):     0.98150
        Slope (%):                                11.00000
        Computed TOC (minutes):                      12.62


**********************
Subbasin Runoff Summary
**********************
```

```
-------
  Subbasin             Total     Total     Total     Total     Total      Peak       Runoff
Time of
  ID                Rainfall     Runon     Evap.    Infil.    Runoff    Runoff  Coefficient
Concentration
                          in        in        in        in        in       cfs              days
hh:mm:ss

-----------------------------------------------------------------------------------------------
-------
  1-UP-PROP             1.96      0.00      0.00      1.06      0.71     55.82        0.360    0
01:45:42
  2-Deadmans-Gulch      1.96      0.00      0.00      1.90      0.01      0.76        0.007    0
02:45:37
  3-GE-OUTFLOW          1.96      0.00      0.00      0.85      0.80     50.29        0.408    0
03:08:56
  4-SH-LOTS-UPHILL      1.96      0.00      0.00      0.66      1.22      8.28        0.623    0
00:57:41
  5-SH-ROAD             1.96      0.00      0.00      0.00      1.90      6.65        0.968    0
00:21:29
  6-SH-LOTS-DOWNHILL      1.96      0.00      0.00      0.57      1.33      8.21        0.677
0  00:59:51
  6-SR248-Shoulder      1.96      0.00      0.00      0.00      1.96      3.00        0.997    0
00:39:07
  7-SR248               1.96      0.00      0.00      0.00      1.90      4.70        0.970    0
00:12:37

-----------------------------------------------------------------------------------------------
-------


  ******************
  Node Depth Summary
  ******************

  -----------------------------------------------------------------------------------------
  Node            Average   Maximum   Maximum   Time of Max     Total     Total   Retention
  ID                Depth     Depth       HGL    Occurrence    Flooded      Time        Time
                 Attained  Attained  Attained                   Volume   Flooded
                       ft        ft        ft   days  hh:mm   acre-in   minutes    hh:mm:ss
  -----------------------------------------------------------------------------------------
  Out-DM             0.52      1.97   6464.77      0  01:29         0         0     0:00:00
  DM-EXISTING-STOR   1.29      9.44   6581.16      0  01:29         0         0     0:00:00


  *****************
  Node Flow Summary
  *****************

  -------------------------------------------------------------------------------------
  Node                Element     Maximum     Peak      Time of   Maximum Time of Peak
  ID                     Type     Lateral   Inflow  Peak Inflow  Flooding     Flooding
                               Inflow           Occurrence  Overflow   Occurrence
                                  cfs      cfs  days  hh:mm       cfs  days  hh:mm
  -------------------------------------------------------------------------------------
  Out-DM               OUTFALL       0.00   113.93     0  01:29      0.00
  DM-EXISTING-STOR     STORAGE     126.14   126.14     0  01:20      0.00


  ********************
  Storage Node Summary
  ********************


-----------------------------------------------------------------------------------------------
-----------------------------------
  Storage Node ID        Maximum     Maximum    Time of Max    Average   Average       Maximum
```

```
Maximum  Time of Max.        Total
                           Ponded      Ponded         Ponded     Ponded    Ponded  Storage Node
Exfiltration  Exfiltration  Exfiltrated
                           Volume      Volume         Volume     Volume    Volume       Outflow
Rate          Rate       Volume
                          1000 ft³         (%)     days hh:mm   1000 ft³       (%)           cfs
cfm      hh:mm:ss     1000 ft³

-------------------------------------------------------------------------------------------------
-----------------------------------
  DM-EXISTING-STOR        17.577          21       0  01:29      1.427         2        113.93
0.00       0:00:00        0.000


  ***********************
  Outfall Loading Summary
  ***********************

  ----------------------------------------------
  Outfall Node ID        Flow   Average      Peak
                   Frequency      Flow    Inflow
                         (%)       cfs       cfs
  ----------------------------------------------
  Out-DM                99.24     13.55    113.93
  ----------------------------------------------
  System                99.24     13.55    113.93


  *****************
  Link Flow Summary
  *****************


-------------------------------------------------------------------------------------------------
--------------------------------
  Link ID              Element       Time of   Maximum  Length   Peak Flow      Design  Ratio of
Ratio of       Total  Reported
                       Type        Peak Flow  Velocity  Factor      during        Flow   Maximum
Maximum        Time  Condition
                                  Occurrence  Attained            Analysis    Capacity   /Design
Flow  Surcharged
                                  days hh:mm    ft/sec                 cfs         cfs      Flow
Depth     minutes

-------------------------------------------------------------------------------------------------
--------------------------------
  Link-05              CONDUIT      0  01:29     14.12    1.00      113.93      187.31      0.61
0.78           0  Calculated


  ***************************
  Flow Classification Summary
  ***************************

  ---------------------------------------------------------------------------
                    --- Fraction of Time in Flow Class ----   Avg.     Avg.
                         Up    Down  Sub   Sup   Up    Down   Froude   Flow
  Link               Dry  Dry   Dry   Crit  Crit  Crit  Crit   Number   Change
  ---------------------------------------------------------------------------
  Link-05           0.00  0.00  0.00  0.07  0.92  0.00  0.00     1.27   0.0006


  ***************************
  Time-Step Critical Elements
  ***************************
  None
```

```
********************************
Highest Flow Instability Indexes
********************************
All links are stable.


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     0.50 sec
Average Time Step           :     0.50 sec
Maximum Time Step           :     0.50 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     2.00


Analysis began on:  Fri Jan 17 10:16:53 2025
Analysis ended on:  Fri Jan 17 10:16:54 2025
Total elapsed time: 00:00:01
```

Shoreline Phase IV
SR 248
Traffic Impact Study

Hideout, Utah

August 2025

TRAFFIC STUDY

TRANS
TRANSPORTATION ENGINEERING

A-Trans Engineering
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Salt Lake City, Utah 84152
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(801) 582-6252 fax

Shoreline Phase IV
SR 248
Traffic Impact Analysis

Hideout, Utah

Category III

August 2025

Prepared by:

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I. Introduction and Summary

This traffic impact analysis is for the proposed Shoreline Phase IV development located off Recreation Drive in Hideout, Utah. The development is planned to include 230 townhomes. The new land use site is projected to generate 92 AM and 117 PM peak hour trips with 1,550 daily trips.

There is likely additional development that will occur in this area by other developers and this is projected to include 192 townhomes and 79 single family homes. The additional development is projected to generate 132 AM and 172 PM peak hour trips with 2,039 daily trips. And this traffic has been considered as additional traffic for the future 2030 and 2045 analysis years.

The site will access the road network by connecting into existing road connections at Recreation Drive and Wake Rider Circle, Upside Drive and Wake Rider Circle, Upside Drive, Perfect Pass Lane and Groves Edge Drive, and Perfect Pass Lane and Vantage Lane. The access that will T into Upside Drive is located approximately 130 feet west of Wake Rider Circle. The two main roads that will be utilized for this development are Shoreline Drive and Hideout Trail. These main roads are located approximately 8,970 feet apart along SR 248. Table 1 shows the results of the analysis.

Table 1: Analysis Results and Summary

		2025 Existing	2025 Total	2030 Background	2045 Background	2030 Total	2045 Total
SR 248 / Shoreline Drive	AM	Side street delay (EB) at 15.3/C	Side street delay (EB) at 17.3/C	Side street delay (EB) at 21.5/C	Side street delay (EB) at 43.2/E	Side street delay (EB) at 25.4/D	Side street delay (EB) at 62.9/F
	PM	Side street delay (EB) at 26.5/D	Side street delay (EB) at 33.4/D	Side street delay (EB) at 57.3/F	Side street delay (EB) at >100/F	Side street delay (EB) at 88.5/F	Side street delay (EB) at >100/F
SR 248 / Hideout Trail	AM	Side street delay (EB) at 16.4/C	Side street delay (EB) at 17.2/C	Side street delay (EB) at 20.2/C	Side street delay (EB) at 39.8/E	Side street delay (EB) at 22.5/C	Side street delay (EB) at 52.5/F
	PM	Side street delay (EB) at 23.7/C	Side street delay (EB) at 25.8/D	Side street delay (EB) at 34.7/D	Side street delay (EB) at >100/F	Side street delay (EB) at 41.9/E	Side street delay (EB) at >100/F

- **The analysis indicates that the proposed Shoreline Phase IV maintains the LOS D or better for all the movements to SR 248 and all internal movements operate at a LOS B or better.**
- **With the additional traffic from the future development of the area and the projected growth of traffic along SR 248, the accesses deteriorate in LOS and a future traffic signal will likely need to be considered at one of the SR 248 connections. With a traffic signal, the connection to SR 248 is projected to operate at a LOS B with the full development of the area.**

- **There is an existing left turn center turn lane along SR 248. Because there are no roadways to the east of either intersection, the center two-way turn lane allows for a two stage left turn egress movement of traffic at both Shoreline Drive and Hideout Trail. Hideout Trail also has a southbound right turn lane but there is currently not a southbound right turn lane at Shoreline Drive. The existing traffic at Shoreline Drive already exceeds the UDOT threshold for a southbound right turn lane.**

II. Proposed Project

This traffic impact analysis is for the proposed Shoreline Phase IV development located off Recreation Drive in Hideout, Utah. The development is planned to include 230 townhomes. The new land use site is projected to generate 92 AM and 117 PM peak hour trips with 1,550 daily trips.

The site will access the road network in five locations. Two on Wake Rider Circle, one on Upside Drive, and two on Perfect Pass Lane. The development will be utilizing Shoreline Drive and Hideout Trail to access the site

The proposed conceptual site plan and access spacing are shown in Figure 1.

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Figure 1

Conceptual Site Plan

III. Study Area Conditions

The study area includes the following intersection.

- Shoreline Drive / SR 248
- Hideout Trail / SR 248

Figure 2 shows the location of the site. Figure 3 shows existing intersection geometry.

SR 248

SR 248 at Shoreline Drive is a 5 lane facility with two lanes in each direction, a two way left turn on the north side and a left turn lane on the south side, and a shoulder on both sides. SR 248 at Hideout trail is a 4 lane facility with two lanes on the north side and a single lane on the south side with a designated right turn lane on the north and a left turn lane on the south. There is also an acceleration lane on the south side. The 2023 AADT is 9,200 vehicles per day with a posted speed limit of 65 MPH. SR 248 is a minor arterial. UDOT classifies SR 248 as a Category 2 roadway.

Shoreline Drive

Shoreline Drive (RT 3131) is a residential road with no striping. The 2023 AADT is 560 vehicles per day with a posted speed limit of 20 MPH.

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Figure 2

Site Location

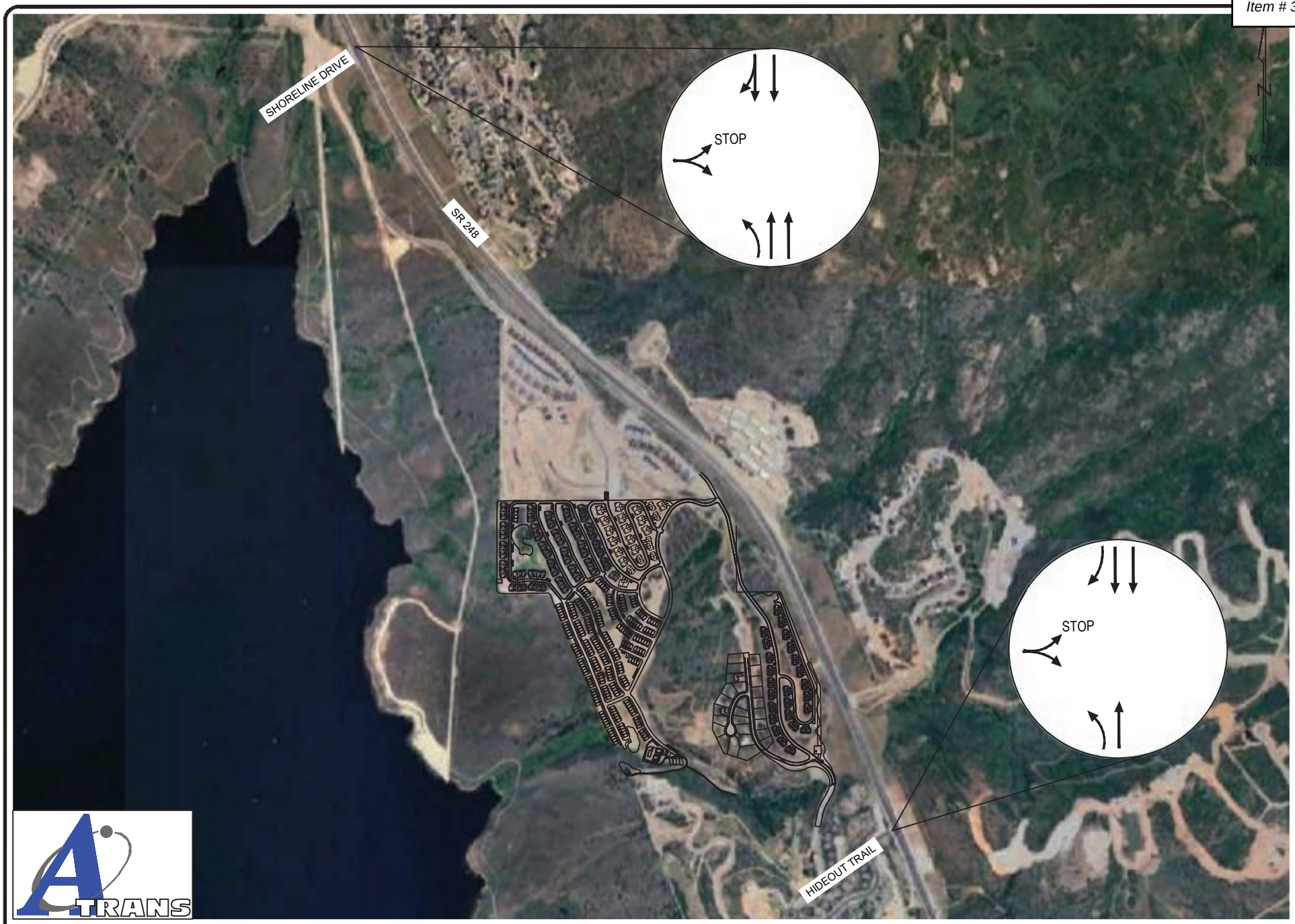

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Figure 3

Existing Geometry

IV. Analysis of Existing Condition

The existing traffic counts were performed July 22nd – July 23rd, 2025 during the AM (7:00 – 9:00 AM) and PM (4:00 – 6:00 PM) peak periods. 2025 Existing Traffic volumes used in the study are shown in Figure 4.

The Highway Capacity Manual defines the Level of Service (LOS) for both signalized and unsignalized intersections as a range of average experienced delay. LOS is a qualitative rating of traveler satisfaction from A to F whereby LOS A is good and LOS F poor. Table 2 shows the LOS range by delay for unsignalized and signalized intersections and accesses.

Table 2: Intersection LOS-Delay Relationship

	Unsignalized	Signalized
Level of Service	Total Delay per Vehicle (sec)	Total Delay per Vehicle (sec)
A	≤ 10.0	≤ 10.0
B	> 10.0 and ≤ 15.0	> 10.0 and ≤ 20.0
C	> 15.0 and ≤ 25.0	> 20.0 and ≤ 35.0
D	> 25.0 and ≤ 35.0	> 35.0 and ≤ 55.0
E	> 35.0 and ≤ 50.0	> 55.0 and ≤ 80.0
F	> 50.0	> 80.0

The analysis shows that Shoreline Drive / SR 248 operates at LOS C in the AM and LOS D PM peak period, and Hideout Trail / SR 248 operates at LOS C in the AM and PM peak period. Table 3 shows the Existing Level of Service for both unsignalized intersections.

Table 3: Existing Level of Service

	Shoreline Drive / SR 248 (EB)	
AM	15.3	C
PM	26.5	D
	Hideout Trail / SR 248 (EB)	
AM	16.4	C
PM	23.7	C

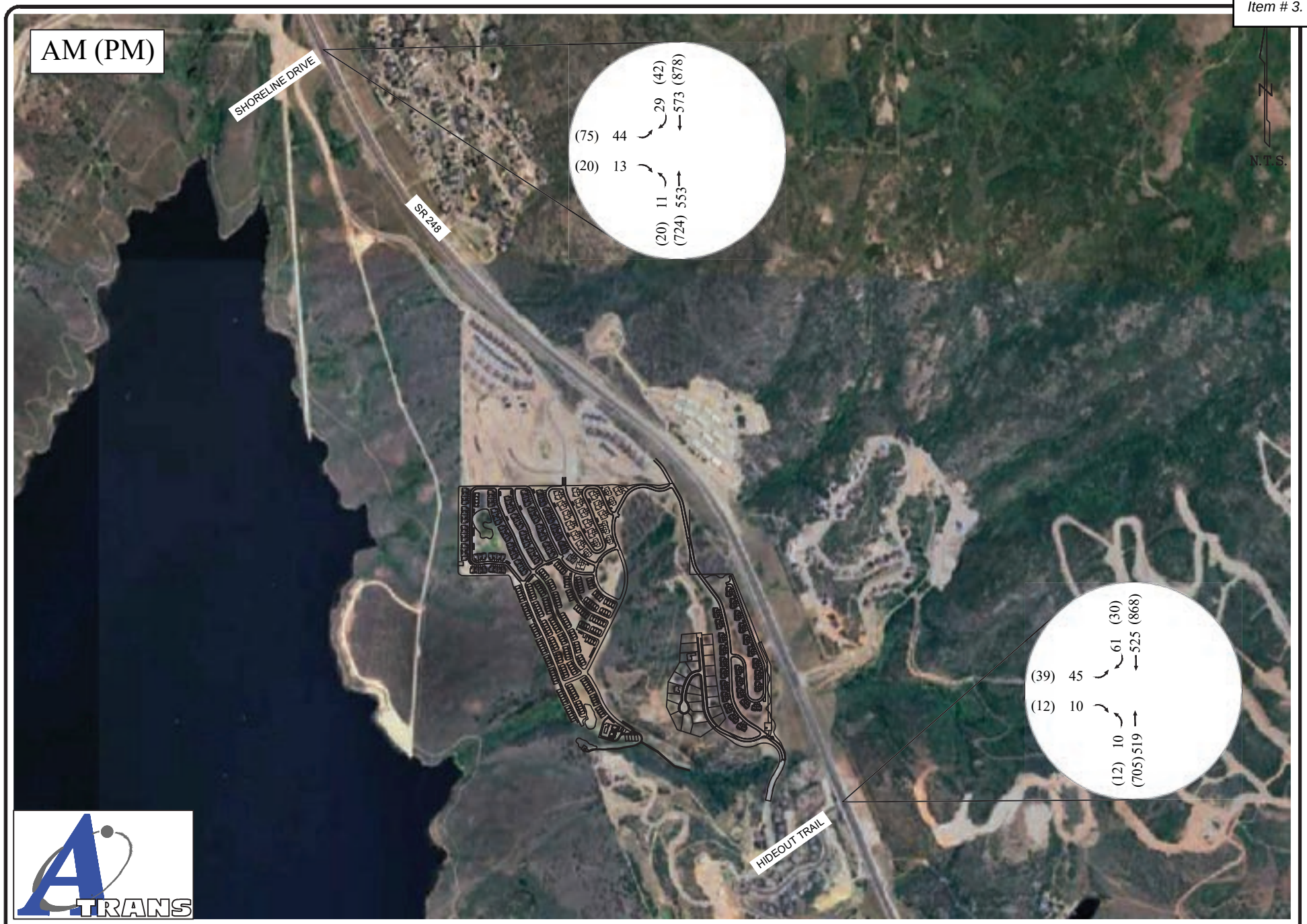

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Figure 4

Existing Traffic

V. Projected Traffic

A. Trip Generation

Trip generation for the site was done using The Institute of Transportation Engineers (ITE) *Trip Generation* (11th Edition) handbook. The development is planned to include 230 townhomes. The site is projected to generate 92 AM and 117 PM peak hour trips with 1,550 daily trips. The trip generation for the site is shown in Table 4.

Table 4: Trip Generation for Site

Land Use Type	Density	Land Use #	Trip Rate	Trips	% In	% Out	Trips In	Trips Out
AM								
Townhomes	230	220	0.40	92	24%	76%	22	70
PM								
Townhomes	230	220	0.51	117	63%	37%	74	43
Daily								
Townhomes	230	220	6.74	1,550				

Trip generation for the future development not related to Shoreline Phase IV but that will add traffic to the intersections being analyzed, was done using The Institute of Transportation Engineers (ITE) *Trip Generation* (11th Edition) handbook. The future development is planned to include 192 townhomes and 79 single family homes. The site is projected to generate 132 AM and 172 PM peak hour trips with 2,039 daily trips. The trip generation for the future development is shown in Table 5.

Table 5: Trip Generation for Future Development

Land Use Type	Density	Land Use #	Trip Rate	Trips	% In	% Out	Trips In	Trips Out
AM								
Townhomes	192	220	0.40	77	24%	76%	18	59
Single family homes	79	210	0.70	55	25%	75%	14	41
Total				**132**			**32**	**100**
PM								
Townhomes	192	220	0.51	98	63%	37%	62	36
Single family homes	79	210	0.94	74	63%	37%	47	27
Total				**172**			**109**	**63**
Daily								
Townhomes	192	220	6.74	1,294				
Single family homes	79	210	9.43	745				
Total				**2,039**				

It should be noted that this represents a very conservative analysis because it assumes primary residential usage for all units. The reality is that this is likely to be as high at 70% secondary homes which have a 50% trip rate of primary homes.

Trip Distribution

Origin-destination was determined from evaluating the location of neighboring residential development and commercial centers as well as the existing traffic patterns of trips at the counted intersections. This was used as a baseline for origin destination and engineering judgment was applied to this to determine the following OD for the site.

- 80% to/from north on SR 248
- 20% to/from south on SR 248

Origin Destination is shown in Figure 5. Site trip distribution is shown in Figure 6.

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Figure 5

Origin Destination

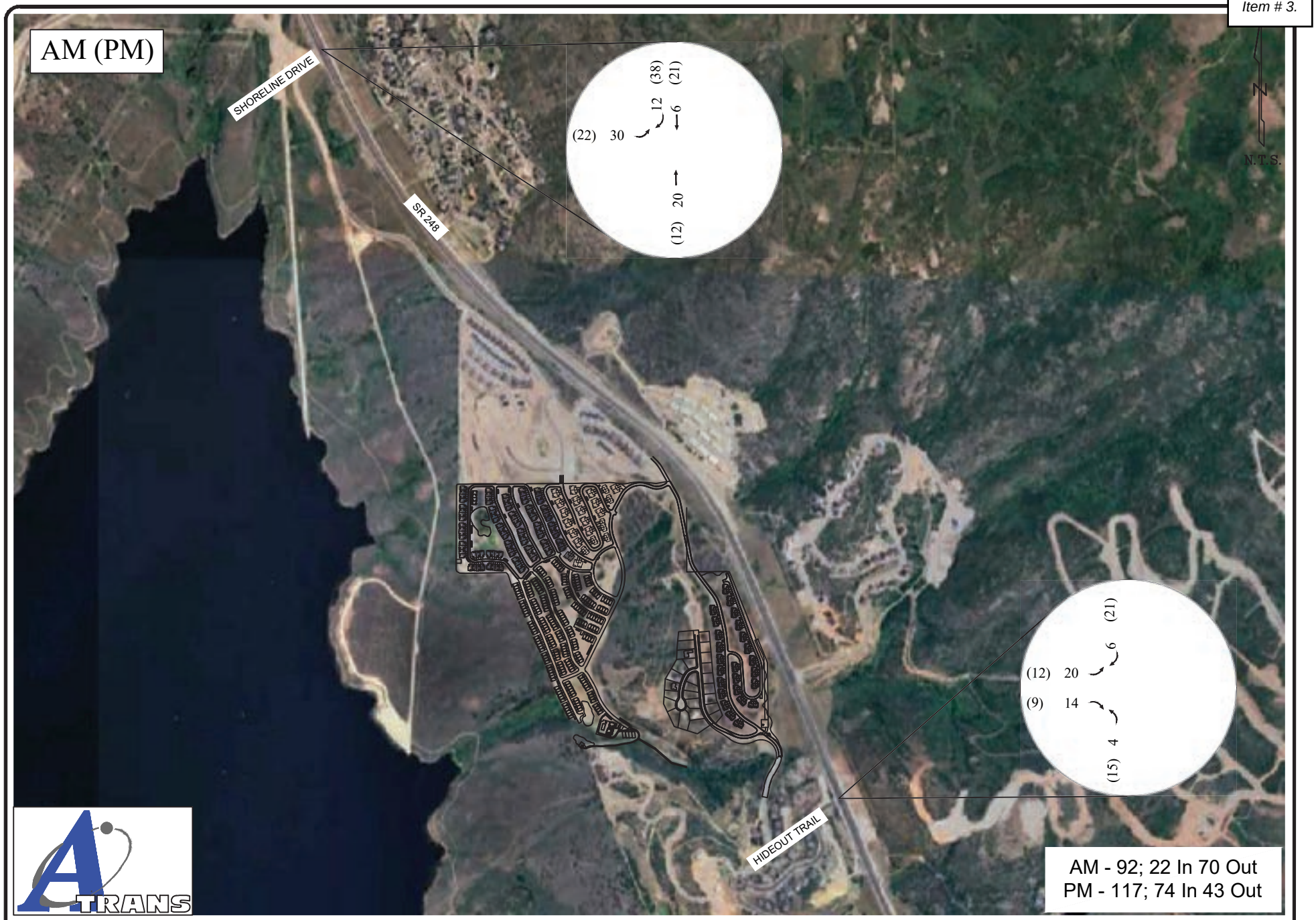

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Figure 6

Site Trip Distribution

VI. Growth

Growth in the area was determined from UDOT's Traffic on Utah Highways and projections from WFRC. The volumes and utilized to determine growth in the area is shown in Table 6. Based on this data an average growth of 2.25% is assumed. The 2030 growth factor is 1.12. The 2045 growth factor is 1.56.

Table 6: Growth Projections

Road:	2000 West (SR 126)	
Year	AADT	Growth
2013	7,500	
2014	7,800	4%
2015	8,200	5%
2016	8,500	4%
2017	8,900	5%
2018	9,100	2%
2019	9,000	-1%
2020	8,100	-10%
2021	9,300	15%
2022	9,000	-3%
2023	9,200	2%
Average		**2.25%**

Background traffic is determined by multiplying the existing traffic by the growth factor for 2030. Additional Background Traffic is shown in Figure 7. 2030 Background Traffic is shown in Figure 8. 2045 Background Traffic is shown if Figure 9. Total traffic in the area for the future projection years is derived by adding the non-site volume forecasts (background traffic) to the site generated traffic. Opening Day Total Traffic is shown in Figure 10. 2030 Total Traffic is shown in Figure 11. 2045 Total Traffic is shown in Figure 12.

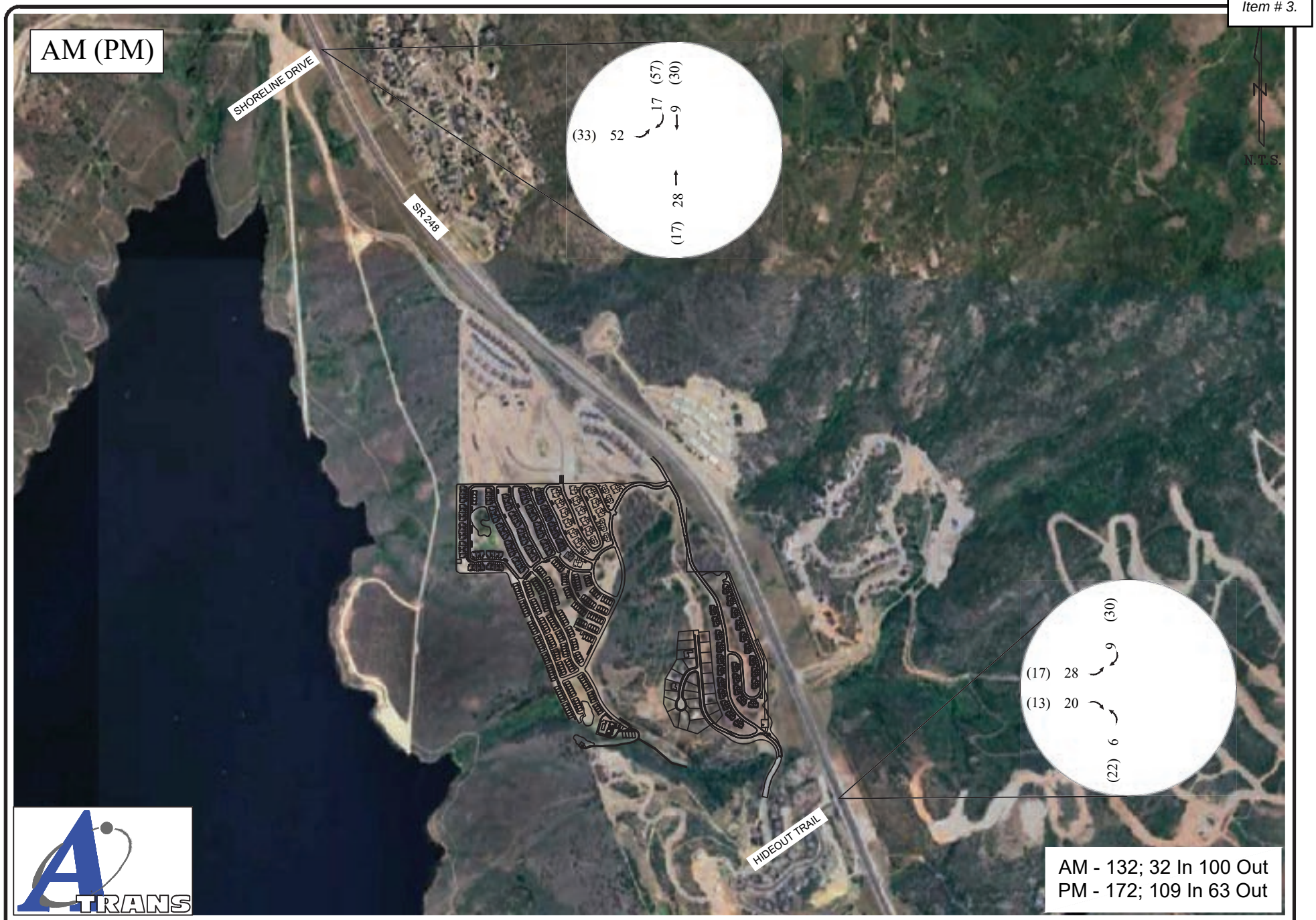

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Figure 7

Future Development

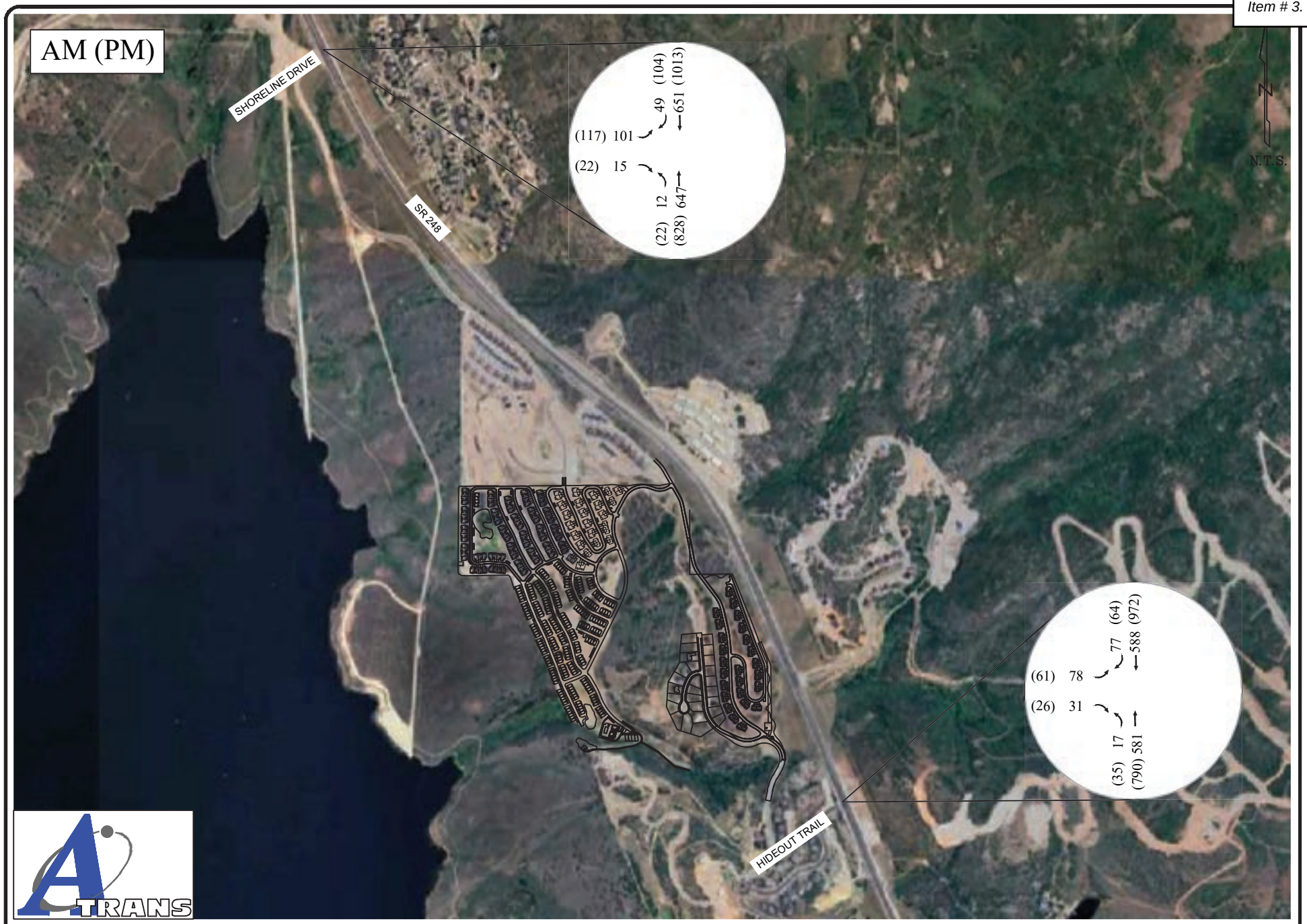

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Figure 8

2030 Background Traffic

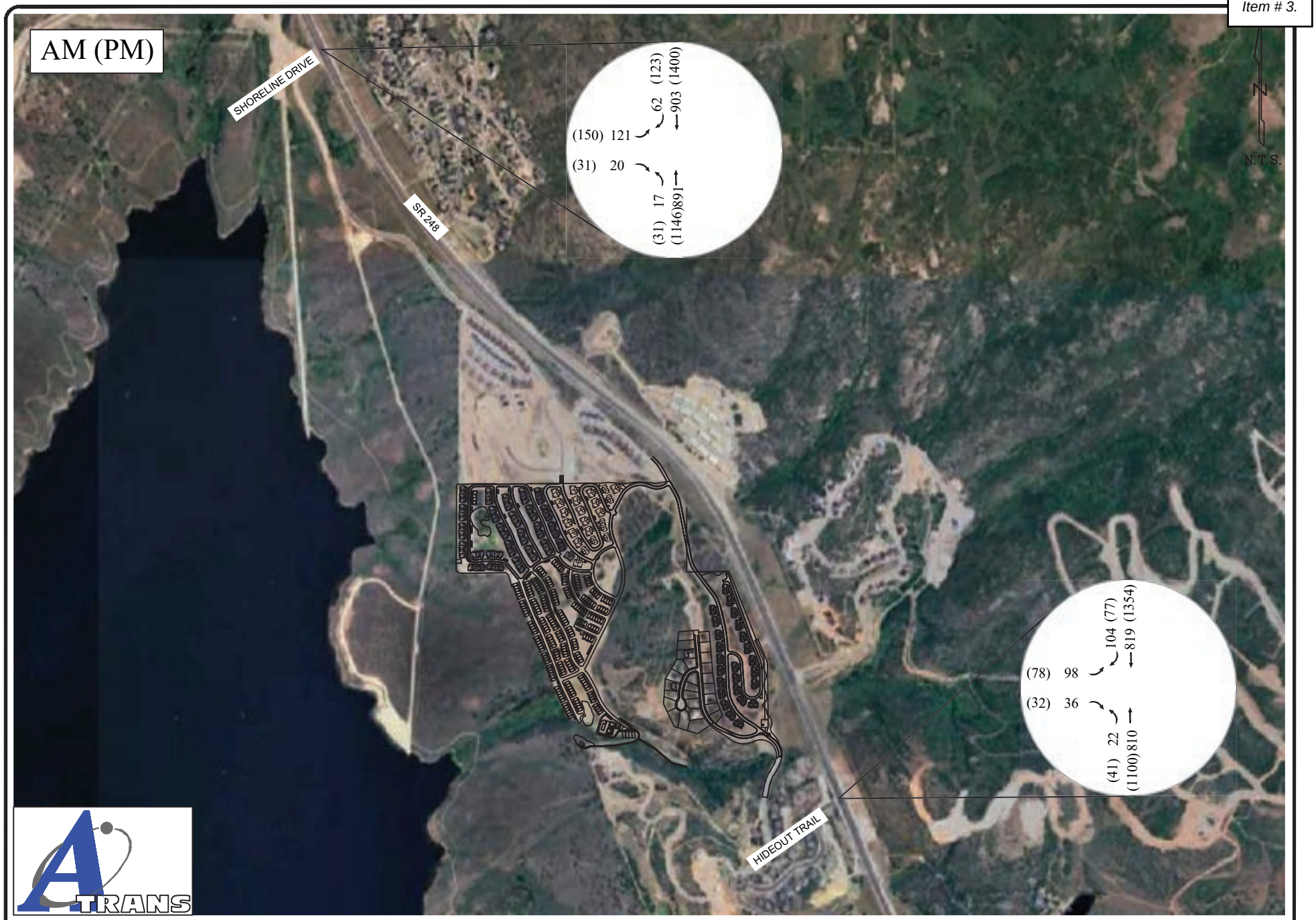

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Figure 9

2045 Background Traffic

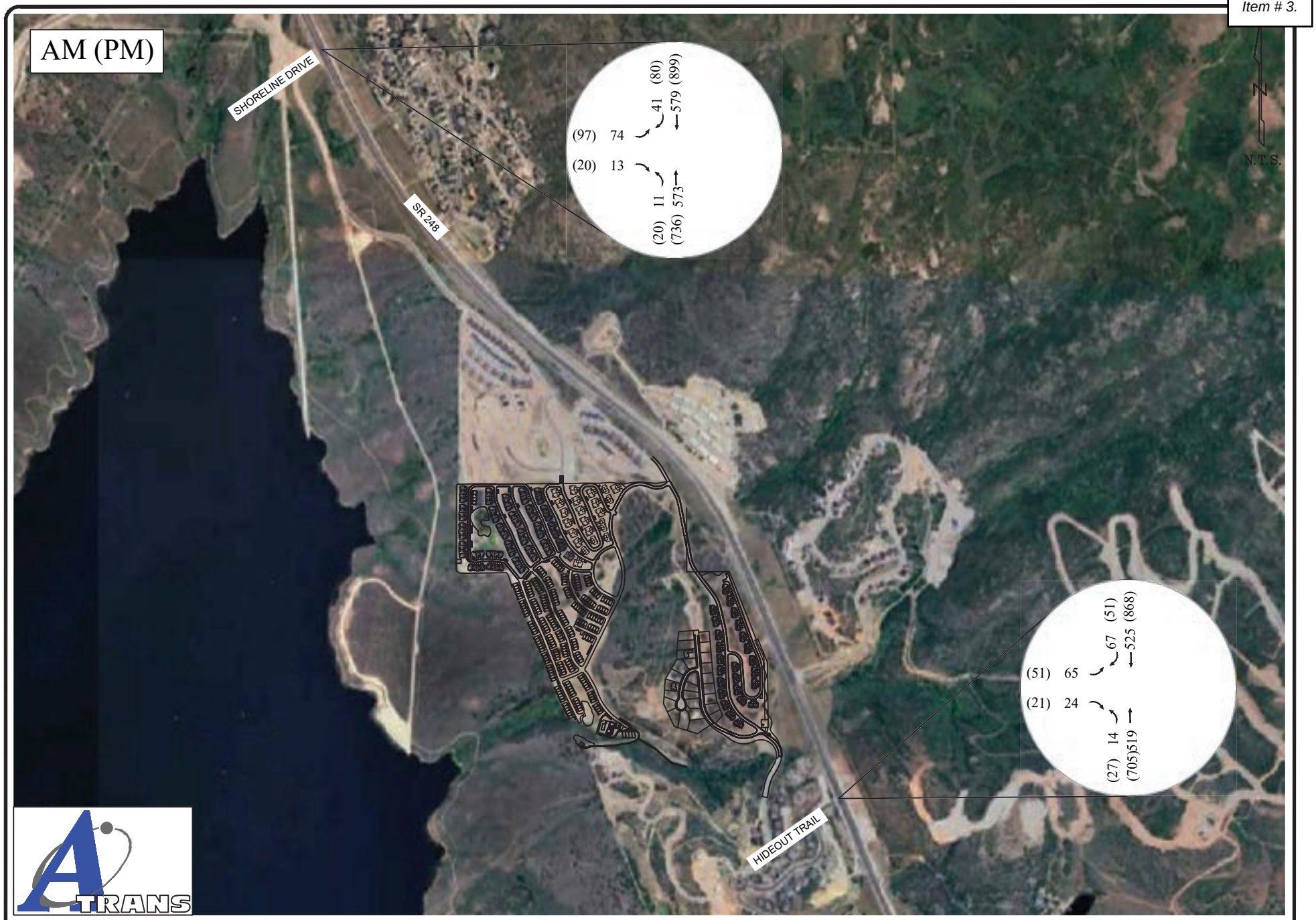

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Figure 10

Opening Day Total Traffic

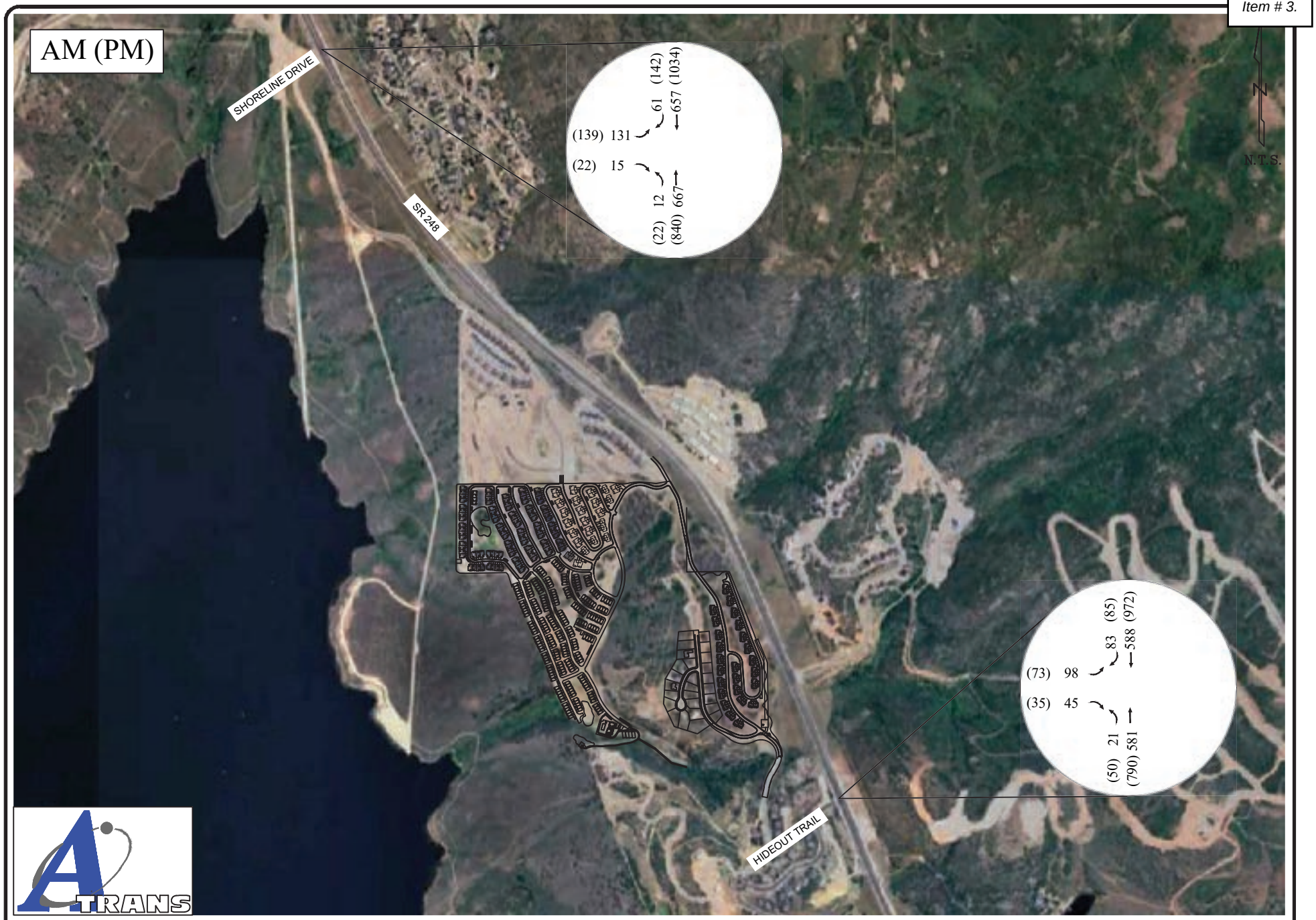

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Figure 11

2030 Total Traffic

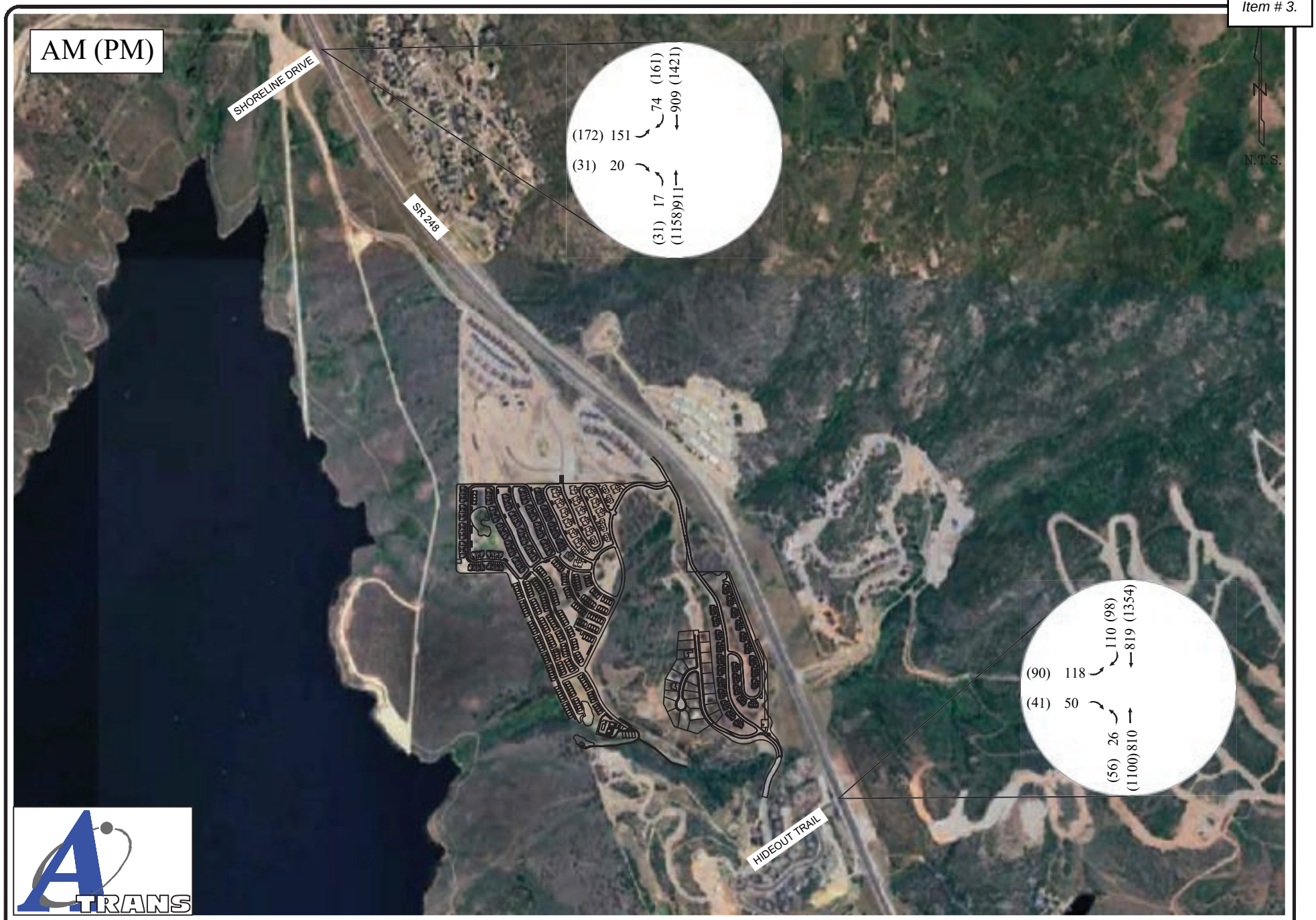

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Figure 12

2045 Total Traffic

VII. Traffic Analysis

A. Level of Service Analysis

The intersection and access analysis evaluates the performance of each intersection and access using the measure of performance of delay and level of service (LOS). Table 7 provides a summary of the analysis. Tables 8-9 show the intersection and access analysis.

Table 7: Analysis Results

		2025 Existing	2025 Total	2030 Background	2045 Background	2030 Total	2045 Total
SR 248 / Shoreline Drive	AM	Side street delay (EB) at 15.3/C	Side street delay (EB) at 17.3/C	Side street delay (EB) at 21.5/C	Side street delay (EB) at 43.2/E	Side street delay (EB) at 25.4/D	Side street delay (EB) at 62.9/F
	PM	Side street delay (EB) at 26.5/D	Side street delay (EB) at 33.4/D	Side street delay (EB) at 57.3/F	Side street delay (EB) at >100/F	Side street delay (EB) at 88.5/F	Side street delay (EB) at >100/F
SR 248 / Hideout Trail	AM	Side street delay (EB) at 16.4/C	Side street delay (EB) at 17.2/C	Side street delay (EB) at 20.2/C	Side street delay (EB) at 39.8/E	Side street delay (EB) at 22.5/C	Side street delay (EB) at 52.5/F
	PM	Side street delay (EB) at 23.7/C	Side street delay (EB) at 25.8/D	Side street delay (EB) at 34.7/D	Side street delay (EB) at >100/F	Side street delay (EB) at 41.9/E	Side street delay (EB) at >100/F

Table 8: SR 248 / Shoreline Drive Intersection Analysis

		NBL		EBLR	
2025 Existing	AM	8.9	A	15.3	C
	PM	10.4	B	26.5	D
2030 Background	AM	9.3	A	21.5	C
	PM	11.6	B	57.3	F
2045 Background	AM	10.6	B	43.2	E
	PM	15.2	C	>100	F
2025 Total	AM	9.0	A	17.3	C
	PM	10.7	B	33.4	D
2030 Total	AM	9.4	A	25.4	D
	PM	12.0	B	88.5	F
2045 Total	AM	10.7	B	62.9	F
	PM	15.9	C	>100	F

Table 9: SR 248 / Hideout Trail Intersection Analysis

		NBL		EBLR	
2025 Existing	AM	8.9	A	16.4	C
	PM	10.2	B	23.7	C
2030 Background	AM	9.2	A	20.2	C
	PM	11.2	B	34.7	D
2045 Background	AM	10.4	B	39.8	E
	PM	14.5	B	>100	F
2025 Total	AM	8.9	A	17.2	C
	PM	10.4	B	25.8	D
2030 Total	AM	9.2	A	22.5	C
	PM	11.5	B	41.9	E
2045 Total	AM	10.5	B	52.5	F
	PM	15.2	C	>100	F

B. Queue Analysis

Based on the projected traffic, queue storage length requirements can be determined. To determine if sufficient storage space exists to accommodate the projected demand, the intersection and accesses included in this traffic study are analyzed for queue storage capacity. The available queue storage lengths and queue storage recommendations are provided by the HCM analysis and are done through Synchro and shown in Table 10. This is the projected Queue lengths in 2045 with full development of the area and the projected growth along SR 248.

Table 10: 2045 Queue Analysis

Queue (feet)		EBL	NBL	SBR
Shoreline Drive / SR 248	Available		250	
	AM Projected	125	50	
	PM Projected	350	50	
Hideout Trail / SR 248	Available		350	150
	AM Projected	100	50	
	PM Projected	175	50	

C. Access Management and Auxiliary Lanes

According to the UDOT, SR 248 is categorized as a Category 2 roadway. As per UDOT Administrative Rule R930-6, signal spacing is required at 5,280 feet, street spacing is required at 1,000 feet and access spacing is required at 1,000 feet or by variance. The distance between access points/intersections is measured from end of radius to end of adjacent radius.

According to UDOT Administrative Rule R930-6 a Category 2 roadway requires:

A left turn deceleration lane with taper and storage length is required for any access with a projected peak hour left ingress turning volume greater than 10 vehicles per hour. The taper length must be included in the required deceleration length.
(I) A left turn lane with deceleration, storage, and taper lengths is required for any access with a projected peak hour left turn ingress turning volume greater than 5 vehicles per hour.
(II) A right turn lane with deceleration and taper lengths is required for any access with a projected peak hour right turn ingress turning volume greater than 10 vehicles per hour.
(III) A right turn lane with acceleration and taper lengths is required for any access with a projected peak hour right turning volume greater than 10 vehicles per hour.
(IV) A left turn acceleration lane may be required if such a design will be a benefit to the safety and operation of the roadway.
(V) Left turn acceleration lanes are generally not required where the posted speed is less than 50 mph, the intersection is signalized, or the acceleration lane would interfere with the left turn ingress movements to any other access.

There is an existing left turn center turn lane along SR 248. Because there are no roadways to the east of either intersection, the center two-way turn lane allows for a two stage left turn egress movement of traffic at both Shoreline Drive and Hideout Trail. Hideout Trail also has a southbound right turn lane but there is currently not a southbound right turn lane at Shoreline Drive. The existing traffic at Shoreline Drive already exceeds the UDOT threshold for a southbound right turn lane.

VIII. Emergency Response

With the Oakland Hills Fire, the recent events in LA and Maui, a question was raised regarding emergency exit availability. While the two primary exits will be onto SR 248 and during times of emergencies, the intersection will typically be controlled by law enforcement. But the Shoreline area of Hideout actually has several exit opportunities that could be utilized during emergencies.

Figure 13: Exit Opportunities for Shoreline Phase IV

IX. Conclusions

This traffic impact analysis is for the proposed Shoreline Phase IV development located off Recreation Drive in Hideout, Utah. The development is planned to include 230 townhomes. The new land use site is projected to generate 92 AM and 117 PM peak hour trips with 1,550 daily trips. The two main roads that will serve the site are Shoreline Drive and Hideout Trail which connect to SR 248.

There is likely additional development that will occur in this area by other developers and this is projected to include 192 townhomes and 79 single family homes. The additional development is projected to generate 132 AM and 172 PM peak hour trips with 2,039 daily trips. And this traffic has been considered as additional traffic for the future 2030 and 2045 analysis years.

It should be noted that this represents a very conservative analysis because it assumes primary residential usage for all units. The reality is that this is likely to be as high at 70% secondary homes which have a 50% trip rate of primary homes.

The following comments are made about the project:

- **The analysis indicates that the proposed Shoreline Phase IV maintains the LOS D or better for all the movements to SR 248 and all internal movements operate at a LOS B or better.**
- **With the additional traffic from the future development of the area and the projected growth of traffic along SR 248, the accesses deteriorate in LOS and a future traffic signal will likely need to be considered at one of the SR 248 connections. With a traffic signal, the connection to SR 248 is projected to operate at a LOS B with the full development of the area.**
- **There is an existing left turn center turn lane along SR 248. Because there are no roadways to the east of either intersection, the center two-way turn lane allows for a two stage left turn egress movement of traffic at both Shoreline Drive and Hideout Trail. Hideout Trail also has a southbound right turn lane but there is currently not a southbound right turn lane at Shoreline Drive. The existing traffic at Shoreline Drive already exceeds the UDOT threshold for a southbound right turn lane.**

APPENDICES

Appendix A	Traffic Counts and Projections
Appendix B	Without Site Intersection Analyses
Appendix C	With Site Intersection Analysis

Appendix A Traffic Counts and Projections

			Trip Rate			Trips		
ITE 11th Edition	Size	Land Use	AM	PM	Daily	AM	PM	Daily
Shoreline Phase IV	230	220	0.40	0.51	6.74	92	117	1550
			0.00	0.00	0.00	0	0	0
Townhomes	192	220	0.40	0.51	6.74	77	98	1294
SFH	79	210	0.70	0.94	9.43	55	74	745

Land Use	Total			
	AM IN	AM Out	PM IN	PM OUT
Shoreline Phase IV	22	70	74	43
-	0	0	0	0
Townhomes	18	59	62	36
SFH	14	41	47	27

Historic Growth

2.25%	Growth Factor	Years	Analysis Year
	1.00	0	2025
	1.12	5	2030
	1.56	20	2045

Straight line growth assumed within the study horizon
Source: Traffic on Utah Highways

Road:	Road A	
Year	AADT	Growth
2013	7,500	
2014	7,800	4%
2015	8,200	5%
2016	8,500	4%
2017	8,900	5%
2018	9,100	2%
2019	9,000	-1%
2020	8,100	-10%
2021	9,300	15%
2022	9,000	-3%
2023	9,200	2%
		2.25%

1	Shoreline / SR 248				1.12		1.56		
	2025	Site	2025	2030	2030	2030	2045	2045	
AM	Existing	Phase I	Total	Addt'l Dev	Backgroun	Total	Background	Total	
EBL	44	30	74	52	101	131	121	151	
EBT			0		0	0	0	0	
EBR	13		13		15	15	20	20	% Increase
WBL			0		0	0	0	0	1
WBT			0		0	0	0	0	
WBR			0		0	0	0	0	
NBL	11		11		12	12	17	17	
NBT	553	20	573	28	647	667	891	911	
NBR			0		0	0	0	0	
SBL			0		0	0	0	0	
SBT	573	6	579	9	651	657	903	909	
SBR	29	12	41	17	49	61	62	74	
East	0	0		0	0	0	0	0	
West	97	42		69	178	220	220	262	
North	1199	68		106	1449	1517	1976	2044	
South	1150	26		37	1325	1351	1831	1857	
	2025	Site	2025	2030	2030	2030	2045	2045	
PM	Existing	Phase I	Total	Addt'l Dev	Backgroun	Total	Background	Total	
EBL	75	22	97	33	117	139	150	172	
EBT			0		0	0	0	0	
EBR	20		20		22	22	31	31	% Increae
WBL			0		0	0	0	0	1
WBT			0		0	0	0	0	
WBR			0		0	0	0	0	
NBL	20		20		22	22	31	31	
NBT	724	12	736	17	828	840	1146	1158	
NBR			0		0	0	0	0	
SBL			0		0	0	0	0	
SBT	878	21	899	30	1013	1034	1400	1421	
SBR	42	38	80	57	104	142	123	161	
East	0	0		0	0	0	0	0	
West	157	60		90	266	326	335	395	
North	1719	93		137	2062	2155	2819	2912	
South	1642	33		47	1886	1919	2609	2642	

2	Hideout Trail / SR 248				1.12		1.56		
	2025	Site	2025	2030	2030	2030	2045	2045	
AM	Existing	Phase I	Total	Addt'l Dev	Backgroun	Total	Backgroun	Total	
EBL	45	20	65	28	78	98	98	118	
EBT			0		0	0	0	0	
EBR	10	14	24	20	31	45	36	50	% Increase
WBL			0		0	0	0	0	1
WBT			0		0	0	0	0	
WBR			0		0	0	0	0	
NBL	10	4	14	6	17	21	22	26	
NBT	519		519		581	581	810	810	
NBR			0		0	0	0	0	
SBL			0		0	0	0	0	
SBT	525		525		588	588	819	819	
SBR	61	6	67	9	77	83	104	110	
East	0	0		0	0	0	0	0	
West	126	44		63	204	248	260	304	
North	1150	26		37	1325	1351	1831	1857	
South	1064	18		26	1218	1236	1686	1704	
	2025	Site	2025	2030	2030	2030	2045	2045	
PM	Existing	Phase I	Total	Addt'l Dev	Backgroun	Total	Backgroun	Total	
EBL	39	12	51	17	61	73	78	90	
EBT			0		0	0	0	0	
EBR	12	9	21	13	26	35	32	41	% Increae
WBL			0		0	0	0	0	1
WBT			0		0	0	0	0	
WBR			0		0	0	0	0	
NBL	12	15	27	22	35	50	41	56	
NBT	705		705		790	790	1100	1100	
NBR			0		0	0	0	0	
SBL			0		0	0	0	0	
SBT	868		868		972	972	1354	1354	
SBR	30	21	51	30	64	85	77	98	
East	0	0		0	0	0	0	0	
West	93	57		82	186	243	227	284	
North	1642	33		47	1886	1919	2609	2642	
South	1597	24		35	1824	1848	2526	2550	

AM PEAK HOUR VOLUMES

Ped = 2

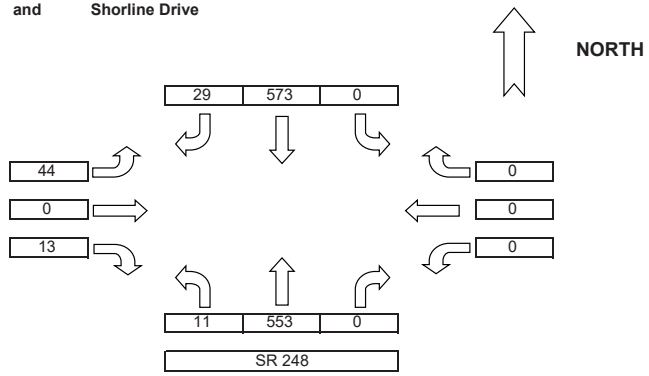
INTERSECTION: **SR 248** **and** **Shorline Drive**

N-S STREET: **SR 248**
E-W STREET: **Shorline Drive**

COUNT DATE: **July 23, 2025**
Day of the Week: **Wednesday**
NOTES:

COUNT TIME:
FROM: **7:00 AM**
TO: **9:00 AM**

PK HR VOLUME:	1,223
PHF:	0.95
PEAK HOUR:	
FROM:	TO:
7:55 AM	8:55 AM



AM Traffic

COUNT DATA INPUT: Name: Kim Name: Kim Name: Kim Name: Kim

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL 5'	TOTAL 15'	PEDESTRIAN	
FROM:	TO:	NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR	WBL	WBT	WBR	VOLUMES	VOLUMES	E/W	N/S
7:00 AM	7:05 AM	1	23	0	1	0	0	0	32	2	0	0	0	59	208	0	0
7:05 AM	7:10 AM	2	29	0	2	0	1	0	39	3	0	0	0	76	227	0	2
7:10 AM	7:15 AM	0	28	0	2	0	2	0	38	3	0	0	0	73	253	0	0
7:15 AM	7:20 AM	0	35	0	1	0	2	0	35	5	0	0	0	78	268	0	0
7:20 AM	7:25 AM	2	37	0	1	0	1	0	57	4	0	0	0	102	284	0	0
7:25 AM	7:30 AM	2	38	0	2	0	2	0	41	3	0	0	0	88	260	0	2
7:30 AM	7:35 AM	1	37	0	0	0	2	0	51	3	0	0	0	94	279	0	0
7:35 AM	7:40 AM	0	32	0	3	0	0	0	42	1	0	0	0	78	275	0	0
7:40 AM	7:45 AM	0	44	0	2	0	4	0	51	6	0	0	0	107	289	0	0
7:45 AM	7:50 AM	0	47	0	4	0	3	0	33	3	0	0	0	90	277	0	0
7:50 AM	7:55 AM	3	49	0	2	0	0	0	35	3	0	0	0	92	286	0	2
7:55 AM	8:00 AM	1	42	0	0	0	1	0	48	3	0	0	0	95	298	0	0
8:00 AM	8:05 AM	0	49	0	0	0	0	0	49	1	0	0	0	99	316	0	0
8:05 AM	8:10 AM	2	42	0	5	0	3	0	51	1	0	0	0	104	322	0	0
8:10 AM	8:15 AM	3	52	0	4	0	0	0	53	1	0	0	0	113	313	0	2
8:15 AM	8:20 AM	0	37	0	7	0	1	0	58	2	0	0	0	105	288	0	0
8:20 AM	8:25 AM	1	45	0	4	0	1	0	40	4	0	0	0	95	300	0	0
8:25 AM	8:30 AM	2	48	0	2	0	1	0	31	4	0	0	0	88	305	0	0
8:30 AM	8:35 AM	0	45	0	4	0	2	0	62	4	0	0	0	117	319	0	0
8:35 AM	8:40 AM	0	50	0	3	0	0	0	43	4	0	0	0	100	297	0	0
8:40 AM	8:45 AM	2	44	0	5	0	1	0	47	3	0	0	0	102	307	0	0
8:45 AM	8:50 AM	0	49	0	6	0	0	0	39	1	0	0	0	95	291	0	0
8:50 AM	8:55 AM	0	50	0	4	0	3	0	52	1	0	0	0	110	196	0	0
8:55 AM	9:00 AM	0	43	0	1	0	1	0	41	0	0	0	0	86	86	0	0

PM PEAK HOUR VOLUMES

Ped = 0

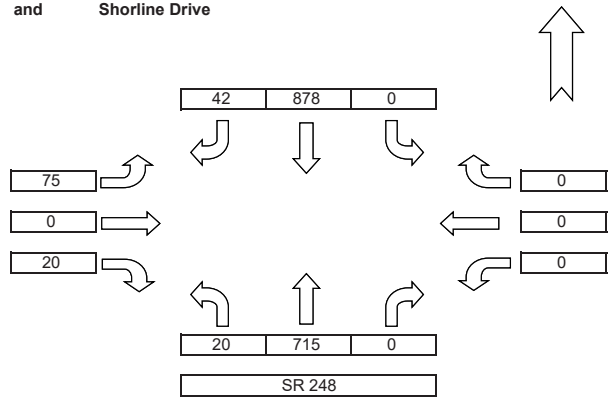
INTERSECTION: **SR 248** **and** **Shorline Drive**

N-S STREET: **SR 248**
E-W STREET: **Shorline Drive**

COUNT DATE: **July 23, 2025**
Day of the Week: **Wednesday**
NOTES:

COUNT TIME:
FROM: **4:00 PM**
TO: **6:00 PM**

PK HR VOLUME: 1,750
PHF: 0.92
PEAK HOUR:
FROM: TO:
4:50 PM 5:50 PM



PM Traffic

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TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL 5'	TOTAL 15'	PEDESTRIAN	
FROM:	TO:	NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR	WBL	WBT	WBR	VOLUMES	VOLUMES	E/W	N/S
4:00 PM	4:05 PM	0	49	0	9	0	3	0	68	4	0	0	0	133	388	0	0
4:05 PM	4:10 PM	3	56	0	4	0	1	0	47	3	0	0	0	114	342	0	0
4:10 PM	4:15 PM	2	66	0	6	0	0	0	63	4	0	0	0	141	354	0	2
4:15 PM	4:20 PM	0	43	0	1	0	2	0	39	2	0	0	0	87	371	0	0
4:20 PM	4:25 PM	1	52	0	1	0	0	0	66	6	0	0	0	126	433	0	0
4:25 PM	4:30 PM	3	72	0	4	0	1	0	75	3	0	0	0	158	415	0	0
4:30 PM	4:35 PM	2	62	0	4	0	1	0	74	6	0	0	0	149	370	0	0
4:35 PM	4:40 PM	3	54	0	3	0	2	0	44	2	0	0	0	108	354	0	0
4:40 PM	4:45 PM	2	44	0	5	0	1	0	59	2	0	0	0	113	404	0	0
4:45 PM	4:50 PM	1	54	0	4	0	0	0	72	2	0	0	0	133	421	0	0
4:50 PM	4:55 PM	2	80	0	10	0	2	0	61	3	0	0	0	158	434	0	0
4:55 PM	5:00 PM	1	49	0	7	0	4	0	66	3	0	0	0	130	408	0	0
5:00 PM	5:05 PM	1	62	0	3	0	0	0	77	3	0	0	0	146	451	0	0
5:05 PM	5:10 PM	2	53	0	6	0	0	0	69	2	0	0	0	132	477	0	0
5:10 PM	5:15 PM	2	70	0	9	0	5	0	86	1	0	0	0	173	472	0	0
5:15 PM	5:20 PM	1	65	0	9	0	0	0	90	7	0	0	0	172	426	0	0
5:20 PM	5:25 PM	2	47	0	6	0	1	0	62	9	0	0	0	127	404	0	0
5:25 PM	5:30 PM	1	61	0	3	0	1	0	56	5	0	0	0	127	429	0	0
5:30 PM	5:35 PM	3	58	0	6	0	1	0	79	3	0	0	0	150	434	0	0
5:35 PM	5:40 PM	3	68	0	4	0	1	0	75	1	0	0	0	152	435	0	0
5:40 PM	5:45 PM	0	44	0	4	0	5	0	78	1	0	0	0	132	390	0	0
5:45 PM	5:50 PM	2	58	0	8	0	0	0	79	4	0	0	0	151	374	0	0
5:50 PM	5:55 PM	0	51	0	5	0	2	0	43	6	0	0	0	107	223	0	0
5:55 PM	6:00 PM	1	53	0	2	0	0	0	57	3	0	0	0	116	116	0	0

AM PEAK HOUR VOLUMES

Ped = 1

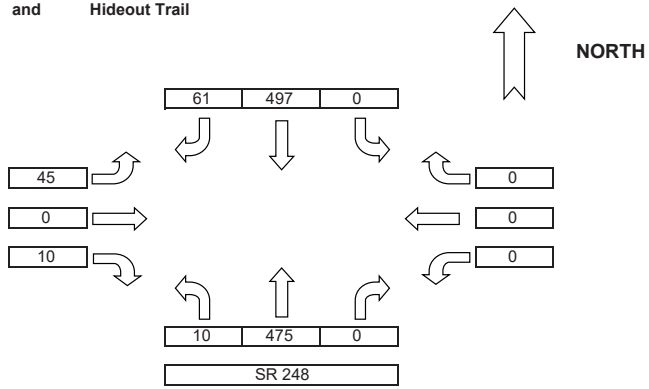
INTERSECTION: **SR 248** **and** **Hideout Trail**

N-S STREET: **SR 248**
E-W STREET: **Hideout Trail**

COUNT DATE: **July 22, 2025**
Day of the Week: **Tuesday**
NOTES:

COUNT TIME:
FROM: **7:00 AM**
TO: **9:00 AM**

PK HR VOLUME: 1,098
PHF: 0.90
PEAK HOUR:
FROM: TO:
7:55 AM 8:55 AM



AM Traffic

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7:00 AM	7:05 AM	1	35	0	0	0	0	0	22	4	0	0	0	62	175	0	0
7:05 AM	7:10 AM	0	22	0	0	0	1	0	27	0	0	0	0	50	176	0	0
7:10 AM	7:15 AM	0	29	0	2	0	2	0	28	2	0	0	0	63	194	0	0
7:15 AM	7:20 AM	0	23	0	0	0	0	0	40	0	0	0	0	63	221	0	0
7:20 AM	7:25 AM	0	32	0	0	0	0	0	34	2	0	0	0	68	242	0	0
7:25 AM	7:30 AM	0	43	0	1	0	0	0	42	4	0	0	0	90	267	0	0
7:30 AM	7:35 AM	1	39	0	2	0	0	0	39	3	0	0	0	84	271	0	0
7:35 AM	7:40 AM	0	56	0	3	0	0	0	26	8	0	0	0	93	287	0	0
7:40 AM	7:45 AM	1	41	0	0	0	0	0	47	5	0	0	0	94	272	0	0
7:45 AM	7:50 AM	1	51	0	2	0	2	0	43	1	0	0	0	100	268	0	0
7:50 AM	7:55 AM	0	31	0	2	0	1	0	36	8	0	0	0	78	255	0	0
7:55 AM	8:00 AM	1	33	0	3	0	1	0	45	7	0	0	0	90	259	0	0
8:00 AM	8:05 AM	0	40	0	3	0	0	0	39	5	0	0	0	87	263	0	0
8:05 AM	8:10 AM	2	31	0	2	0	2	0	41	4	0	0	0	82	254	0	0
8:10 AM	8:15 AM	0	43	0	5	0	0	0	43	3	0	0	0	94	248	0	0
8:15 AM	8:20 AM	0	37	0	4	0	0	0	29	8	0	0	0	78	261	0	0
8:20 AM	8:25 AM	2	37	0	5	0	0	0	27	5	0	0	0	76	269	0	0
8:25 AM	8:30 AM	0	55	0	7	0	0	0	40	5	0	0	0	107	285	0	0
8:30 AM	8:35 AM	1	42	0	4	0	1	0	36	2	0	0	0	86	292	0	0
8:35 AM	8:40 AM	0	47	0	4	0	1	0	38	2	0	0	0	92	305	0	0
8:40 AM	8:45 AM	4	41	0	5	0	1	0	56	7	0	0	0	114	306	0	0
8:45 AM	8:50 AM	0	37	0	2	0	3	0	52	5	0	0	0	99	268	0	0
8:50 AM	8:55 AM	0	32	0	1	0	1	0	51	8	0	0	0	93	169	0	0
8:55 AM	9:00 AM	1	33	0	1	0	0	0	37	4	0	0	0	76	76	0	0

PM PEAK HOUR VOLUMES

Ped = 0

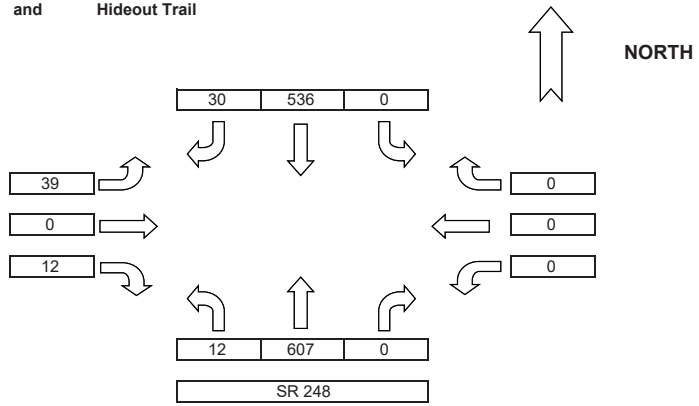
INTERSECTION: **SR 248** **and** **Hideout Trail**

N-S STREET: **SR 248**
E-W STREET: **Hideout Trail**

COUNT DATE: **July 22, 2025**
Day of the Week: **Tuesday**
NOTES:

COUNT TIME:
FROM: **4:00 PM**
TO: **6:00 PM**

PK HR VOLUME:	1,236
PHF:	0.91
PEAK HOUR:	
FROM:	TO:
4:05 PM	5:05 PM



PM Traffic

COUNT DATA INPUT: Name: Heather Name: Heather Name: Heather Name: Heather

TIME PERIOD		NORTHBOUND			EASTBOUND			SOUTHBOUND			WESTBOUND			TOTAL 5'	TOTAL 15'	PEDESTRIAN	
FROM:	TO:	NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR	WBL	WBT	WBR	VOLUMES	VOLUMES	E/W	N/S
4:00 PM	4:05 PM	0	54	0	5	0	2	0	53	4	0	0	0	118	319	0	0
4:05 PM	4:10 PM	2	56	0	6	0	2	0	27	2	0	0	0	95	315	0	0
4:10 PM	4:15 PM	0	55	0	0	0	1	0	47	3	0	0	0	106	303	0	0
4:15 PM	4:20 PM	0	66	0	3	0	2	0	41	2	0	0	0	114	304	0	0
4:20 PM	4:25 PM	1	38	0	1	0	1	0	39	3	0	0	0	83	283	0	0
4:25 PM	4:30 PM	1	50	0	2	0	4	0	48	2	0	0	0	107	294	0	0
4:30 PM	4:35 PM	0	57	0	3	0	0	0	30	3	0	0	0	93	297	0	0
4:35 PM	4:40 PM	1	43	0	1	0	0	0	43	6	0	0	0	94	298	0	0
4:40 PM	4:45 PM	4	44	0	5	0	0	0	55	2	0	0	0	110	318	0	0
4:45 PM	4:50 PM	2	44	0	2	0	1	0	44	1	0	0	0	94	304	0	0
4:50 PM	4:55 PM	1	48	0	5	0	0	0	55	5	0	0	0	114	340	0	0
4:55 PM	5:00 PM	0	42	0	7	0	1	0	46	0	0	0	0	96	308	0	0
5:00 PM	5:05 PM	0	64	0	4	0	0	0	61	1	0	0	0	130	308	0	0
5:05 PM	5:10 PM	0	47	0	4	0	1	0	26	4	0	0	0	82	284	0	0
5:10 PM	5:15 PM	0	42	0	4	0	4	0	43	3	0	0	0	96	279	0	0
5:15 PM	5:20 PM	3	41	0	5	0	0	0	55	2	0	0	0	106	291	0	0
5:20 PM	5:25 PM	0	34	0	4	0	3	0	36	0	0	0	0	77	278	0	1
5:25 PM	5:30 PM	0	44	0	2	0	0	0	55	7	0	0	0	108	308	0	0
5:30 PM	5:35 PM	0	49	0	0	0	0	0	44	0	0	0	0	93	285	0	0
5:35 PM	5:40 PM	1	39	0	5	0	0	0	60	2	0	0	0	107	275	0	0
5:40 PM	5:45 PM	0	54	0	0	0	2	0	28	1	0	0	0	85	259	0	0
5:45 PM	5:50 PM	0	42	0	2	0	2	0	35	2	0	0	0	83	265	0	0
5:50 PM	5:55 PM	1	39	0	0	0	0	0	49	2	0	0	0	91	182	0	0
5:55 PM	6:00 PM	0	41	0	7	0	0	0	43	0	0	0	0	91	91	0	0

Appendix B Without Site Intersection Analyses

HCM 6th TWSC
1: SR 248 & Shoreline Drive

07/31/2025

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	13	11	553	573	29
Future Vol, veh/h	44	13	11	553	573	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	48	14	12	601	623	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	964	328	655	0	-	0
Stage 1	639	-	-	-	-	-
Stage 2	325	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	253	668	928	-	-	-
Stage 1	488	-	-	-	-	-
Stage 2	705	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	250	668	928	-	-	-
Mov Cap-2 Maneuver	368	-	-	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	705	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.3	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	928	-	410	-	-
HCM Lane V/C Ratio	0.013	-	0.151	-	-
HCM Control Delay (s)	8.9	-	15.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	10	10	519	525	61
Future Vol, veh/h	45	10	10	519	525	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	11	11	564	571	66

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1157	286	637	0	-	0
Stage 1	571	-	-	-	-	-
Stage 2	586	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	203	712	945	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	555	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	201	712	945	-	-	-
Mov Cap-2 Maneuver	338	-	-	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	555	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	945	-	374	-	-
HCM Lane V/C Ratio	0.012	-	0.16	-	-
HCM Control Delay (s)	8.9	-	16.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

HCM 6th TWSC
1: SR 248 & Shoreline Drive

07/31/2025

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	75	20	20	724	878	42
Future Vol, veh/h	75	20	20	724	878	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	82	22	22	787	954	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1415	500	1000	0	-	0
Stage 1	977	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	128	516	688	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	618	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	124	516	688	-	-	-
Mov Cap-2 Maneuver	239	-	-	-	-	-
Stage 1	315	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.5	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	688	-	269	-	-
HCM Lane V/C Ratio	0.032	-	0.384	-	-
HCM Control Delay (s)	10.4	-	26.5	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.7	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	39	12	12	705	868	30
Future Vol, veh/h	39	12	12	705	868	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	13	13	766	943	33

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1735	472	976	0	-	0
Stage 1	943	-	-	-	-	-
Stage 2	792	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	87	539	705	-	-	-
Stage 1	340	-	-	-	-	-
Stage 2	445	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	85	539	705	-	-	-
Mov Cap-2 Maneuver	212	-	-	-	-	-
Stage 1	334	-	-	-	-	-
Stage 2	445	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.7	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	705	-	247	-	-
HCM Lane V/C Ratio	0.019	-	0.224	-	-
HCM Control Delay (s)	10.2	-	23.7	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

HCM 6th TWSC
1: SR 248 & Shoreline Drive

07/31/2025

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	101	15	12	647	651	49
Future Vol, veh/h	101	15	12	647	651	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	110	16	13	703	708	53

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1113	381	761	0	-	0
Stage 1	735	-	-	-	-	-
Stage 2	378	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	203	617	847	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	200	617	847	-	-	-
Mov Cap-2 Maneuver	322	-	-	-	-	-
Stage 1	428	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.5	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	847	-	343	-	-
HCM Lane V/C Ratio	0.015	-	0.368	-	-
HCM Control Delay (s)	9.3	-	21.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	1.6	-	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	78	31	17	581	588	77
Future Vol, veh/h	78	31	17	581	588	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	85	34	18	632	639	84

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1307	320	723	0	-	0
Stage 1	639	-	-	-	-	-
Stage 2	668	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	163	676	877	-	-	-
Stage 1	489	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	160	676	877	-	-	-
Mov Cap-2 Maneuver	298	-	-	-	-	-
Stage 1	479	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.2	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	877	-	354	-	-
HCM Lane V/C Ratio	0.021	-	0.335	-	-
HCM Control Delay (s)	9.2	-	20.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.4	-	-

HCM 6th TWSC
1: SR 248 & Shoreline Drive

07/31/2025

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	117	22	22	828	1013	104
Future Vol, veh/h	117	22	22	828	1013	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	24	24	900	1101	113

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1656	607	1214	0	-	0
Stage 1	1158	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 89	439	570	-	-	-
Stage 1	261	-	-	-	-	-
Stage 2	576	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 85	439	570	-	-	-
Mov Cap-2 Maneuver	190	-	-	-	-	-
Stage 1	250	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	57.3	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	570	-	209	-	-
HCM Lane V/C Ratio	0.042	-	0.723	-	-
HCM Control Delay (s)	11.6	-	57.3	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	4.7	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	61	26	35	790	972	64
Future Vol, veh/h	61	26	35	790	972	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	28	38	859	1057	70

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1992	529	1127	0	-	0
Stage 1	1057	-	-	-	-	-
Stage 2	935	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 59	495	618	-	-	-
Stage 1	296	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 55	495	618	-	-	-
Mov Cap-2 Maneuver	171	-	-	-	-	-
Stage 1	278	-	-	-	-	-
Stage 2	381	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34.7	0.5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	618	-	213	-	-
HCM Lane V/C Ratio	0.062	-	0.444	-	-
HCM Control Delay (s)	11.2	-	34.7	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.2	-	2.1	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
1: SR 248 & Shoreline Drive

07/31/2025

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	121	20	17	891	903	62
Future Vol, veh/h	121	20	17	891	903	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	132	22	18	968	982	67

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1536	525	1049	0	-	0
Stage 1	1016	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 107	497	659	-	-	-
Stage 1	310	-	-	-	-	-
Stage 2	561	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 104	497	659	-	-	-
Mov Cap-2 Maneuver	221	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	561	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	43.2	0.2	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	659	-	240	-	-
HCM Lane V/C Ratio	0.028	-	0.639	-	-
HCM Control Delay (s)	10.6	-	43.2	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0.1	-	3.9	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	98	36	22	810	819	104
Future Vol, veh/h	98	36	22	810	819	104
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	39	24	880	890	113

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1818	445	1003	0	-	0
Stage 1	890	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 77	561	688	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	384	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 74	561	688	-	-	-
Mov Cap-2 Maneuver	201	-	-	-	-	-
Stage 1	349	-	-	-	-	-
Stage 2	384	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39.8	0.3	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	688	-	243	-	-
HCM Lane V/C Ratio	0.035	-	0.599	-	-
HCM Control Delay (s)	10.4	-	39.8	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0.1	-	3.5	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

HCM 6th TWSC
1: SR 248 & Shoreline Drive

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Intersection	
Int Delay, s/veh	23.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	150	31	31	1146	1400	123
Future Vol, veh/h	150	31	31	1146	1400	123
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	163	34	34	1246	1522	134

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2280	828	1656	0	-	0
Stage 1	1589	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 34	314	385	-	-	-
Stage 1	~ 153	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 31	314	385	-	-	-
Mov Cap-2 Maneuver	~ 108	-	-	-	-	-
Stage 1	~ 140	-	-	-	-	-
Stage 2	459	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 373.4	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	385	-	122	-	-
HCM Lane V/C Ratio	0.088	-	1.613	-	-
HCM Control Delay (s)	15.2	-	$ 373.4	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	14.4	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	78	32	41	1100	1354	77
Future Vol, veh/h	78	32	41	1100	1354	77
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	85	35	45	1196	1472	84

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2758	736	1556	0	-	0
Stage 1	1472	-	-	-	-	-
Stage 2	1286	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 18	362	423	-	-	-
Stage 1	178	-	-	-	-	-
Stage 2	258	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 16	362	423	-	-	-
Mov Cap-2 Maneuver	97	-	-	-	-	-
Stage 1	159	-	-	-	-	-
Stage 2	258	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	141.3	0.5	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	423	-	123	-	-
HCM Lane V/C Ratio	0.105	-	0.972	-	-
HCM Control Delay (s)	14.5	-	141.3	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.4	-	6.5	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Appendix C With Site Intersection Analyses

HCM 6th TWSC
1: SR 248 & Shoreline Drive

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Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	74	13	11	573	579	41
Future Vol, veh/h	74	13	11	573	579	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	80	14	12	623	629	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	988	337	674	0	-	0
Stage 1	652	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	244	659	913	-	-	-
Stage 1	480	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	241	659	913	-	-	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	474	-	-	-	-	-
Stage 2	696	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.3	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	913	-	387	-	-
HCM Lane V/C Ratio	0.013	-	0.244	-	-
HCM Control Delay (s)	9	-	17.3	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.9	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	65	24	14	519	525	67
Future Vol, veh/h	65	24	14	519	525	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	71	26	15	564	571	73

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1165	286	644	0	-	0
Stage 1	571	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	201	712	939	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	198	712	939	-	-	-
Mov Cap-2 Maneuver	335	-	-	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	551	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.2	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	939	-	391	-	-
HCM Lane V/C Ratio	0.016	-	0.247	-	-
HCM Control Delay (s)	8.9	-	17.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	1	-	-

HCM 6th TWSC
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Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	97	20	20	736	899	80
Future Vol, veh/h	97	20	20	736	899	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	22	22	800	977	87

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1465	532	1064	0	-	0
Stage 1	1021	-	-	-	-	-
Stage 2	444	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	119	492	651	-	-	-
Stage 1	309	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	115	492	651	-	-	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	298	-	-	-	-	-
Stage 2	614	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.4	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	651	-	250	-	-
HCM Lane V/C Ratio	0.033	-	0.509	-	-
HCM Control Delay (s)	10.7	-	33.4	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	2.6	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	21	27	705	868	51
Future Vol, veh/h	51	21	27	705	868	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	23	29	766	943	55

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1767	472	998	0	-	0
Stage 1	943	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	83	539	691	-	-	-
Stage 1	340	-	-	-	-	-
Stage 2	430	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	80	539	691	-	-	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	326	-	-	-	-	-
Stage 2	430	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.8	0.4	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	691	-	250	-	-
HCM Lane V/C Ratio	0.042	-	0.313	-	-
HCM Control Delay (s)	10.4	-	25.8	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	-	-

HCM 6th TWSC
1: SR 248 & Shoreline Drive

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Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	131	15	12	667	657	61
Future Vol, veh/h	131	15	12	667	657	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	142	16	13	725	714	66

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1136	390	780	0	-	0
Stage 1	747	-	-	-	-	-
Stage 2	389	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	196	609	833	-	-	-
Stage 1	429	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	193	609	833	-	-	-
Mov Cap-2 Maneuver	316	-	-	-	-	-
Stage 1	422	-	-	-	-	-
Stage 2	654	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.4	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	833	-	332	-	-
HCM Lane V/C Ratio	0.016	-	0.478	-	-
HCM Control Delay (s)	9.4	-	25.4	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0	-	2.5	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	98	45	21	581	588	83
Future Vol, veh/h	98	45	21	581	588	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	49	23	632	639	90

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1317	320	729	0	-	0
Stage 1	639	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	161	676	873	-	-	-
Stage 1	489	-	-	-	-	-
Stage 2	503	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	157	676	873	-	-	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.5	0.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	873	-	359	-	-
HCM Lane V/C Ratio	0.026	-	0.433	-	-
HCM Control Delay (s)	9.2	-	22.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	2.1	-	-

HCM 6th TWSC
1: SR 248 & Shoreline Drive

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Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	139	22	22	840	1034	142
Future Vol, veh/h	139	22	22	840	1034	142
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	151	24	24	913	1124	154

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1706	639	1278	0	-	0
Stage 1	1201	-	-	-	-	-
Stage 2	505	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 82	419	539	-	-	-
Stage 1	248	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 78	419	539	-	-	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	237	-	-	-	-	-
Stage 2	571	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	88.5	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	539	-	196	-	-
HCM Lane V/C Ratio	0.044	-	0.893	-	-
HCM Control Delay (s)	12	-	88.5	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	6.9	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	73	35	50	790	972	85
Future Vol, veh/h	73	35	50	790	972	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	79	38	54	859	1057	92

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2024	529	1149	0	-	0
Stage 1	1057	-	-	-	-	-
Stage 2	967	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 56	495	606	-	-	-
Stage 1	296	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 51	495	606	-	-	-
Mov Cap-2 Maneuver	165	-	-	-	-	-
Stage 1	270	-	-	-	-	-
Stage 2	368	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	41.9	0.7	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	606	-	210	-	-
HCM Lane V/C Ratio	0.09	-	0.559	-	-
HCM Control Delay (s)	11.5	-	41.9	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0.3	-	3	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
1: SR 248 & Shoreline Drive

07/31/2025

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	151	20	17	911	909	74
Future Vol, veh/h	151	20	17	911	909	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	164	22	18	990	988	80

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1559	534	1068	0	-	0
Stage 1	1028	-	-	-	-	-
Stage 2	531	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 103	491	648	-	-	-
Stage 1	306	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 100	491	648	-	-	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	297	-	-	-	-	-
Stage 2	554	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	62.9	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	648	-	232	-	-
HCM Lane V/C Ratio	0.029	-	0.801	-	-
HCM Control Delay (s)	10.7	-	62.9	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	5.9	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	118	50	26	810	819	110
Future Vol, veh/h	118	50	26	810	819	110
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	128	54	28	880	890	120

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1826	445	1010	0	-	0
Stage 1	890	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 76	561	684	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 73	561	684	-	-	-
Mov Cap-2 Maneuver	199	-	-	-	-	-
Stage 1	347	-	-	-	-	-
Stage 2	381	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	52.5	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	684	-	246	-	-
HCM Lane V/C Ratio	0.041	-	0.742	-	-
HCM Control Delay (s)	10.5	-	52.5	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	0.1	-	5.2	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th TWSC
1: SR 248 & Shoreline Drive

07/31/2025

Intersection	
Int Delay, s/veh	35.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	172	31	31	1158	1421	161
Future Vol, veh/h	172	31	31	1158	1421	161
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	187	34	34	1259	1545	175

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2331	860	1720	0	-	0
Stage 1	1633	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	~ 31	299	364	-	-	-
Stage 1	~ 145	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 28	299	364	-	-	-
Mov Cap-2 Maneuver	~ 102	-	-	-	-	-
Stage 1	~ 132	-	-	-	-	-
Stage 2	455	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	$ 523.1	0.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	364	-	113	-	-
HCM Lane V/C Ratio	0.093	-	1.953	-	-
HCM Control Delay (s)	15.9	-	$ 523.1	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.3	-	18	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Int Delay, s/veh	10.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	90	41	56	1100	1354	98
Future Vol, veh/h	90	41	56	1100	1354	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	350	-	-	150
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	98	45	61	1196	1472	107

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	2790	736	1579	0	-	0
Stage 1	1472	-	-	-	-	-
Stage 2	1318	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	~ 18	362	415	-	-	-
Stage 1	178	-	-	-	-	-
Stage 2	249	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	~ 15	362	415	-	-	-
Mov Cap-2 Maneuver	~ 93	-	-	-	-	-
Stage 1	152	-	-	-	-	-
Stage 2	249	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	206.2	0.7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	415	-	121	-	-
HCM Lane V/C Ratio	0.147	-	1.177	-	-
HCM Control Delay (s)	15.2	-	206.2	-	-
HCM Lane LOS	C	-	F	-	-
HCM 95th %tile Q(veh)	0.5	-	8.8	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

File Attachments for Item:

1. Discussion and Possible Approval of Resolution 2025-R-XX Appointing an Interim City Recorder

RESOLUTION 2025-R-XX

A RESOLUTION APPOINTING AN INTERIM CITY RECORDER FOR THE TOWN OF HIDEOUT, UTAH

WHEREAS, a City Recorder is required by State Statute and is necessary for the effective functioning of the City's affairs; and

WHEREAS, it has become necessary to appoint an Interim City Recorder to perform such duties as required by the City Council and State Code until a permanent appointment is made; and

WHEREAS, the Mayor, with the advice and consent of the City Council, may appoint persons to the office of City Recorder; and

WHEREAS, after review and consideration, the Mayor desires, upon advice and consent of the Council, to appoint Kathleen Hopkins, currently serving as Deputy Recorder, as the Interim City Recorder for the City of Hideout, Utah, until such time as a permanent City Recorder is appointed.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF HIDEOUT, UTAH:

1. That the Mayor hereby appoints Kathleen Hopkins as the Interim City Recorder for the City of Hideout, Utah.

2. That the City Council hereby consents to said appointment.

WHEREFORE, Resolution 2025-__ was Passed and Adopted by the City Council of Hideout, Utah, this ___ day of _____, 2025.

By:

_____

Ralph Severini, Mayor

ATTEST:

_____

Interim City Recorder

File Attachments for Item:

2. Discussion of Planning Commission Rules and Regulations.

To: Hideout Town Council

From: Polly McLean, Town Attorney and Planning Commission

Date: October 9 , 2025

Re: Planning Commission Rules and Regulations and suggestion for Code Amendments

Mayor and Council,

The Planning Commission reviewed proposed Rules and Regulations which they adopted at their September 18, 2025 meeting. In reviewing these Rules, they suggested some code changes. Please consider directing staff to propose the following changes to the Hideout Code:

1) Because the Code is silent on appointing a chair and vice-chair, the Planning Commission requests that the codify process for appointing a chair and vice-chair. Because the code is silent the planning commission has adopted the following as part of their Rules. (below is in codified form):

   A Chair and Vice Chair shall be elected annually at the first meeting of the new year by majority vote of the Commission from among regular members. To be eligible, the Chair and Vice Chair cannot be an alternate member.

   The Vice Chair shall assume the duties of Chair for the remainder of the year if the Chair resigns. A new Vice Chair is elected by a majority vote of the Commission from among regular members at the first scheduled meeting after the resignation.

   3.02.010 CREATION

1. Composition; Appointment: Pursuant to the provisions of Utah Code, there is hereby created a planning commission for Hideout. The planning commission shall consist of five (5) members, to be appointed by the mayor, with the advice and consent of the council. Initially, the members shall be appointed with one (1) member having their term expire January 1, 2010, and two (2) members having their terms expire January 1, 2012. Thereafter, every even numbered year, in the month of January, the mayor, with the advice and consent of the council, shall appoint members of said commission, for a term of four (4) years. The terms shall be staggered in such a manner that no more than three (3) terms expire in a given year. All terms expire on January 1 in the applicable year.

2. Term: Each member of the planning commission shall serve until the expiration of the term for which they are appointed or until their successor is appointed and qualified. At the expiration of each term, new appointments shall be promptly made in the same manner as original appointment as provided in this section.
3. Vacancy: Any vacancy occurring during an unexpired term, due to death, resignation or removal from office shall be promptly filled by the mayor, with the advice and consent of the council, for the unexpired portion of the term.
4. Alternates: Two (2) alternate members of the planning commission may be selected in the same manner and for the same length of time as a regular member. The alternate member may sit in for a full time member of the commission, at the request of the chairperson, when the full time member is not able to be in attendance. The alternate may only vote at such time as they are acting for the full time member.
5. Chair and Vice Chair: The Chair and Vice Chair shall be elected annually at the first meeting of the new year by majority vote of the Commission from among regular members. To be eligible, the Chair and Vice Chair cannot be an alternate member. The Vice Chair shall assume the duties of Chair for the remainder of the year if the Chair resigns. A new Vice Chair shall be elected by a majority vote of the Commission from among regular members at the first scheduled meeting after the resignation.

2) Removal for any reason - The Planning Commission asked the Council to consider removing the ability to remove a Commissioner without cause.

3.02.030 REMOVAL FROM COMMISSION

The Town Council may remove any member of the planning commission, with ~~or without~~ cause, at an open meeting. Any Planning Commission member who is absent from two (2) consecutive regularly scheduled meetings, or a total of four (4) regularly scheduled meetings per calendar year may be called before the Town Council and asked to resign or be removed for cause by the Council.

RESOLUTION NO. 2025-R-XX

A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF HIDEOUT, UTAH, ACCEPTING THE RULES AND REGULATIONS OF THE HIDEOUT PLANNING COMMISSION

WHEREAS, the Town of Hideout Municipal Code, Section 3.02.080, provides that the Planning Commission shall submit to the Town Council rules and regulations, subject to the laws of the State of Utah and the ordinances of the Town, to provide for the regulation of its procedure and the conduct of its duties; and

WHEREAS, the Hideout Planning Commission reviewed and adopted its Rules and Regulations on September 18, 2025, to ensure clear procedures, promote consistency, and align with applicable provisions of the Hideout Municipal Code and Utah State Code Title 10, Chapter 9a, Municipal Land Use, Development, and Management Act; and

WHEREAS, the Planning Commission has submitted the adopted Rules and Regulations to the Town Council for formal acceptance, as required under Hideout Municipal Code Section 3.02.080; and

WHEREAS, the Town Council finds that the adoption of these Rules and Regulations is in the best interest of the Town to ensure effective and transparent operation of the Planning Commission.

NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF HIDEOUT, UTAH, AS FOLLOWS:

1. The Town Council hereby accepts the Rules and Regulations of the Hideout Planning Commission, as adopted by the Planning Commission on September 18, 2025.

2. The accepted Rules and Regulations shall remain in effect unless and until amended by the Planning Commission and subsequently accepted by the Town Council in accordance with Section 3.02.080 of the Hideout Municipal Code.

3. This Resolution shall become effective immediately upon passage.

PASSED AND ADOPTED by the Town Council of the Town of Hideout, Utah, this ___ day of _____, 2025.

TOWN OF HIDEOUT:

_____

Ralph Severini, Mayor

ATTEST:

_____

Alicia Fairbourne, Recorder for Hideout

TOWN OF HIDEOUT PLANNING COMMISSION
RULES AND REGULATIONS
Adopted September 18, 2025
Presented to Council October 9, 2025

The Planning Commission shall adhere to the following rules and regulations in administration of the Commission duties and governance of their meetings. The Planning Commission shall be familiar with and follow all requirements of Utah State Code Title 10, Chapter 9a (Land Management Code) and Chapter 13 (Ethics) and the Hideout Municipal Code (Title 3, Chapter 3.02 (Planning Commission) and Titles 11 and 12 (Subdivisions and Zoning) related to Planning Commissions.

I. Membership

The Planning Commission consists of five (5) voting members and two (2) alternate members appointed by the Mayor with the advice and consent of the Town Council.

Members shall serve staggered four-year terms. The Mayor shall, with the advice and consent of the Town Council, appoint or reappoint a Planning Commission member to fill a position on the Planning Commission that has expired or to fill any vacancies that might arise. If a vacancy occurs, the newly appointed member fills the remainder of the vacating member's term.

There is no limitation on the number of successive terms a Planning Commissioner serves if they are reappointed.

Members must be full-time residents of Hideout aged 18 years of age or older for at least a year and maintain residency during their service.

Members shall avoid conflicts of interest as required by law and Town policy, i.e., any financial interest beyond single dwelling ownership.

II. Officers

A Chair and Vice Chair shall be elected annually at the first meeting of the new year by majority vote of the Commission from among regular members. To be eligible, the Chair and Vice Chair cannot be an alternate member.

The Chair shall preside over all meetings and hearings of the Commission and coordinate with staff on agendas. The Chair shall pace the meeting so that all items on the agenda can be addressed and either concluded or continued. The Chair shall use his/her best efforts to preserve order and see that members of the Commission and the public are treated with respect. The Chair shall sign official recommendations and reports on behalf of the Commission.

The Vice Chair shall preside in the absence of the Chair.

The Vice Chair shall assume the duties of Chair for the remainder of the year if the Chair resigns. A new Vice Chair is elected by a majority vote of the Commission from among regular members at the first scheduled meeting after the resignation.

The Recorder for the Town of Hideout or the Recorder's designee shall serve as Secretary, responsible for agendas, minutes, and official records. The Planning Director or appointed designee shall provide all required noticing and prepare all reports and gather such information as may be necessary for the Planning Commission to conduct its business and to all necessary parties prior to the meeting.

III. Meetings

All meetings shall comply with the Utah Open and Public Meetings Act.

A. Regular Meetings:

Commission shall hold regular monthly meetings and shall adopt an annual schedule each year. Public notice of all meetings shall be provided in accordance with Utah Code and all applicable Hideout Town codes.

No schedule changes should be made except for the lack of a quorum.

The Planning Commission shall not conduct any business at a meeting unless a quorum is present. A quorum shall consist of three (3) members of the Commission. No action may be taken without a quorum.

Materials for agenda items must be delivered to the Planning Commission by noon three business days prior to the meeting or the Planning Commission has the right to cancel that agenda item. If packet materials are received after that time, the Chair will discuss with staff if the item will be placed on the agenda. The Planning Commission shall not act on or make any final decision regarding an item that is not on the agenda.

There shall be on every agenda of the Planning Commission an item entitled "public comment". The public comment portion of the meeting shall be limited to the public speaking to the Commission on any item not on the agenda. Members of the public shall be free to express any idea, question, or viewpoint without limitation except for time and the manner of the presentation.

Individual members of the public shall be limited to the time allowed by the Chair. The Chair shall ensure that the public comment is civil and orderly. The Chair shall use his/her best efforts to allow the free expression of the public and keep the meeting in order. Planning Commission and staff should not interrupt, argue with, or otherwise interfere with any comment by a member of the public. The Planning Commission and staff may ask clarifying questions of the member of the public making a presentation, and other members of the public may comment at the discretion and recognition by the Chair.

At regular meetings of the Planning Commission, members shall speak and have discussion without interrupting others who are speaking. Any meeting designated as a work meeting shall be more informal, and Planning Commission may freely participate if proper decorum is maintained. Planning Commission shall always conduct themselves with decorum and respect and shall refrain from making any disparaging remarks concerning any other member of the governing body or the public.

B. Special Meetings:

Special Meetings may be called by the Chair or at the request of three (3) or more regular members.

C. Voting:

A quorum of Commission members must be present and voting in a public meeting. Actions require a majority vote of those present and voting. All votes will be cast verbally. After the vote is taken, any member of the Commission desiring to explain his/her vote shall be allowed an opportunity to do so.

The Commission consists of two alternates. The alternates attend all meetings of the Commission. An alternate member may sit in for a regular member of the Commission, at the request of the Chair, when the regular member is not able to be in attendance, including if the regular member recuses on a matter. When an alternate is needed in place of a regular member, the two alternate members rotate the responsibility for an entire meeting. The alternate may only vote at such time as they are acting for the regular member. Even if not voting, an alternate shall sit with the Planning Commission and may participate in the discussion and ask questions but may not vote.

Failure to vote by a member shall be counted as an abstention. All official Commission members will vote except those who have abstained. A Commission member shall abstain only if he or she has possible conflict of interest. All members of the Commission shall be familiar with and adhere to the provisions of Title 10 Chapter 3 Part 13, U.C.A., "Municipal Officers' and Employees' Ethics Act" and Hideout Town conflict of interest and ethics ordinances. If the Commissioner(s) suspects that they may have a conflict of interest which would affect their employment or financial interests concerning any matter to be reviewed by the Planning Commission, they shall consult with the Town Attorney prior to the scheduled review for advice regarding the appropriate action to be taken or shall declare the conflict on the record and should recuse themselves from the meeting and not participate in the discussion or voting on the matter. If the Commissioner(s) first suspects such a conflict of interest during the meeting in which the matter is being reviewed, they shall declare the conflict on the record and should recuse themselves from the meeting and not participate in the discussion or voting on the matter.

IV. Member Duties

In compliance with Hideout Town Code, all members of the Planning Commission shall complete training before they can vote in their first meeting. Yearly training shall be conducted by all members.

All Planning Commission members must attend meetings, review materials in advance, disclose conflicts of interest, and deliberate in good faith.

A Planning Commission member shall notify the Recorder for the Town and the Chair if they expect to be absent. Any Planning Commission member who is absent from two (2) consecutive regularly scheduled meetings, or a total of four (4) regularly scheduled meetings per calendar year may be called before the Town Council and asked to resign or be removed for cause by the Council.

Ex Parte Communication: An ex parte contact is any communication with an applicant, applicant's representative or member of the public interested in the outcome of a decision that occurs outside of a Planning Commission meeting regarding a matter that is on the agenda or anticipated to be placed on a future agenda. Commissioners should refrain from engaging in these communications. Anyone speaking to Commissioners on these matters should do so at a public meeting, so their comments, concerns, and evidence are on the public record. A Commissioner who has engaged in ex-parte communication should disclose the nature and extent of the communication prior to consideration of the matter and declare whether the member is capable of making a decision free from bias as a result of the communication.

V. Amendments

These Rules may be amended by majority vote of the Planning Commission.

PASSED AND ADOPTED this 18 day of September, 2025, by the Planning Commission of Hideout, Utah.

Planning Commission Chair: _____

Attachments:

1. General Plan (link)
2. Copy of Hideout Code on Planning Commission (Chapter 3.02)
3. Copy of State Code Ethics Code.(Title 10, Chapter 3, Part 13)

Hideout Code (As of September 18, 2025) Be sure to check code online for any updates or amendments

3.02 PLANNING COMMISSION
3.02.010 CREATION
3.02.020 QUALIFICATIONS - TRAINING AND RESIDENCY REQUIREMENTS
3.02.030 REMOVAL FROM COMMISSION
3.02.040 COMPENSATION
3.02.050 POWERS AND DUTIES
3.02.060 COOPERATION WITH COUNTY
3.02.070 RECORD OF PROCEEDINGS
3.02.080 RULES AND REGULATIONS
3.02.090 NOTICE REQUIREMENTS

3.02.010 CREATION

1. Composition; Appointment: Pursuant to the provisions of Utah Code, there is hereby created a planning commission for Hideout. The planning commission shall consist of five (5) members, to be appointed by the mayor, with the advice and consent of the council. Initially, the members shall be appointed with one (1) member having their term expire January 1, 2010, and two (2) members having their terms expire January 1, 2012. Thereafter, every even numbered year, in the month of January, the mayor, with the advice and consent of the council, shall appoint members of said commission, for a term of four (4) years. The terms shall be staggered in such a manner that no more than three (3) terms expire in a given year. All terms expire on January 1 in the applicable year.
2. Term: Each member of the planning commission shall serve until the expiration of the term for which they are appointed or until their successor is appointed and qualified. At the expiration of each term, new appointments shall be promptly made in the same manner as original appointment as provided in this section.
3. Vacancy: Any vacancy occurring during an unexpired term, due to death, resignation or removal from office shall be promptly filled by the mayor, with the advice and consent of the council, for the unexpired portion of the term.
4. Alternates: Two (2) alternate members of the planning commission may be selected in the same manner and for the same length of time as a regular member. The alternate member may sit in for a full time member of the commission, at the request of the chairperson, when the full time member is not able to be in attendance. The alternate may only vote at such time as they are acting for the full time member.

HISTORY
Adopted by Ord. 20-02 on 1/23/2020

3.02.020 QUALIFICATIONS - TRAINING AND RESIDENCY REQUIREMENTS

1. Members of the planning commission must qualify by taking, subscribing and filing with the clerk the oath of office required by section 10, article IV of the constitution of Utah.
2. Residency Requirement. No person may be appointed to the Planning Commission unless such person is a full time resident within the Town of Hideout for at least twelve (12) months prior to their appointment and must remain a full time resident while serving as a Planning Commissioner.
3. Training Requirement. All members of the Planning Commission shall:
    1. complete at least four (4) hours of annual land use training offered by the Utah League of Cities and Towns; or a list of training courses selected by the Utah League of Cities and Towns

2. Proof of completion shall be submitted to the Town Clerk and the record shall be maintained of training completion at the end of each calendar year.
3. This section shall apply to all current members of the Planning Commission, including alternates. All members shall complete at least two hours of training within sixty (60) calendar days of the effective date of this Ordinance. A newly appointed Planning Commissioner shall complete at least two hours of training within sixty (60) calendar days of being appointed.

HISTORY
Adopted by Ord. 20-02 on 1/23/2020

3.02.030 REMOVAL FROM COMMISSION

The Town Council may remove any member of the planning commission, with or without cause, at an open meeting. Any Planning Commission member who is absent from two (2) consecutive regularly scheduled meetings, or a total of four (4) regularly scheduled meetings per calendar year may be called before the Town Council and asked to resign or be removed for cause by the Council.

3.02.040 COMPENSATION

The council may, by resolution, fix per diem compensation for the members of the planning commission, including alternates, based on meetings actually attended.

HISTORY
Adopted by Ord. 20-02 on 1/23/2020

3.02.050 POWERS AND DUTIES

The planning commission shall have such powers and functions and shall perform such duties as prescribed by Utah Code Title 10-9a, and any further amendments of or supplements to which may hereafter be enacted, and shall also have such powers and functions and perform such other duties in connection with the planning and zoning of the town as may hereafter be prescribed by any ordinance. The planning commission shall be designated as the administrative land use authority for preliminary approval of all subdivision applications, and may not be the land use authority for final approval of subdivision applications for developments single-family, two-family, or townhome dwelling units.

HISTORY
Adopted by Ord. 20-02 on 1/23/2020
Amended by Ord. 2024-O-13 Subdivision Code Update on 12/12/2024

3.02.060 COOPERATION WITH COUNTY

The planning commission, in the exercise of its powers and the discharge of its duties, shall seek to cooperate with any planning commission or other official body of the county having similar powers and duties.

HISTORY
Adopted by Ord. 20-02 on 1/23/2020

3.02.070 RECORD OF PROCEEDINGS

The planning commission shall keep a public record of its proceedings, which shall be filed in the office of the clerk.

HISTORY
Adopted by Ord. 20-02 on 1/23/2020

3.02.080 RULES AND REGULATIONS

The planning commission shall submit to the council rules and regulations subject to the provisions of the laws of the state and the planning and zoning ordinances of the town, to provide for the regulation of its procedure and the conduct of its duties, and may submit amendments to such rules from time to time to the council.

HISTORY
Adopted by Ord. 20-02 on 1/23/2020

3.02.090 NOTICE REQUIREMENTS

1. If any applicant desires to have an item placed on the agenda for the regular meeting of the Planning Commission, a complete application (inclusive of all supporting content and required documents such as site plans, building elevations, etc.) and all associated fees and escrow funds must be submitted to the Recorder's Office no later than 10:00 am mountain time forty-five (45) calendar days prior to the Planning Commission's regularly scheduled meeting. If any required application items are delivered after the time set forth in this section, such application items will be placed on the agenda for the following regular meeting of the Planning Commission.
2. This section makes no changes to any Land Use application schedule or deadlines outlined within existing Town Code or within any duly adopted Master Development Agreement. Those schedules and/or deadlines must be completed prior to any affected item being placed upon the agenda as outlined above.
3. All applications for property development and/or use permits shall be actively pursued to a final decision by the town. If no activity such as plan submittals, reviews, meetings, or communication by the applicant has occurred on an application for one hundred eighty (180) days, the application will be deemed as inactive, and the file closed. The applicant may submit a written request to maintain the application as active, wherein upon finding that there is good cause and reasonable belief that the application will be pursued to completion, the Town Planner, or their designee may grant a one-time ninety (90) day extension. Once a file is closed, an applicant will be required to pay all applicable fees and reapply for permits or development.

Summary of 15 Utah Planning Commissions

Town/ City	# PC Members	Alts?	Term of Members	Chair Appointed by	Term of chair	Vice Chair?	Removal
Alta	5	Alt if mayor wants to; didn't specify #	5 years; staggered so 1 seat expires each year on March 1	PC	5 years first term, re-elected one succeeding consecutive term of 5 years	Not codified	Any planning commission member who is absent from three (3) consecutive regularly scheduled meetings, or a total of five (5) regularly scheduled meetings per calendar year, or who violates ethical standards under Utah Code Annotated, or who engages in improper or illegal conduct, may be called before the town council and asked to resign or be removed for cause by the town council.
Moab	5	N/A	3 years	PC	3 years	Yes, PC elects	Members may be removed, with or without cause, by a majority vote of City Council.
Park City	7	Alt if mayor wants to; didn't specify #	4 years; staggered so they expire the second Wednesday in July	PC	1 year	Yes;	Any Planning Commission member who is absent from two (2) consecutive regularly scheduled meetings, or a total of four (4) regularly scheduled meetings per calendar year, or who violates Title 3, Ethics, may be called before the City Council and asked to resign or be removed for cause by the Council.
Salt Lake City	5 - 11	N/A	4 years; no specific staggering, some only serve 2 and that shifts the appointment date	PC	1 year	Yes, PC elects	Any member of the Planning Commission may be removed by the Mayor for violation of this title or any policies and procedures adopted by the Planning Commission following receipt by the Mayor of a written complaint filed against the member.

Francis	5	N/A	2 years	PC	1 year	Yes, PC elects	A member of the Commission may be removed from office by majority vote of the City Council.
Heber	7	2; can fill in for members and be the tie-breaker vote	Members are 6 years; alts, chair, and vice chair serve 2 years	PC	2 years	Yes, PC elects	Improper conduct and non-performance of duties shall result in removal for cause as stated in 2.48.020. Members may be removed after a public hearing, by a majority vote of the City Council.
Kamas	5	1 alt appointed by mayor and City Council	Members are 5 years; staggered so member 1 ends first, member 2 ends the year after that, and so on; alts serve <5 years; chair and vice chair serve 1 year	PC	1 year	Yes, PC elects	The governing body may remove any member of the planning commission for cause and after public hearing, if one is requested.
Morgan City	7	2 alts; also a 4 year term, can only vote if they are sitting in for a full time member	4 years; appointments occur on EVEN numbered years, such that no fewer than 2 and no more than 3 terms expire in a given year	PC	4 years	Yes; unknown	The city council may remove any member of the planning commission, with or without cause, upon written notice.
Bluffdale	5	1 alt; can vote if someone is missing	<4 years; staggered every 2 years with no more than 3 terms expiring in any calendar year; chair and vice chair 1 year term	PC	<4 years	Yes, PC elects	The Mayor may remove any member or alternate of the Planning Commission at any time and for any reason with the advice and consent of the City Council.

Herriman	7	2	3 years, but no specific code stating this.	PC	1 year	Yes; PC elects	The city council may remove any member of the planning commission whenever it appears that such removal would be in the best interests of the city, as determined by the city council.
Saratoga Springs	7	N/A	4 years; staggered so terms of the members expire on different years; No planning commissioner may serve more than two consecutive four-year terms.	PC	2 year; A person may be elected to serve consecutive terms as Chair andVice-Chair.	Yes, PC elects	A member of the Planning Commission may be removed by the Mayor with the advice and consent of the City Council.
Woods Cross	7	N/A	Members 4 years; chair and vice chair 1 year	PC	N/A	Yes, PC elects	The Mayor, with the advice and consent of the City Council, may remove any member of the Planning Commission at any time with or without cause. Written notice of removal shall be given to a member who is removed.
Lehi	5 from the qualified electors of the city.	Up to 2 alts; may act with the full powers and duties of a regular planning commissioner, however, an alternate member may vote only in the absence of a regular	3 years; No more than three (3) consecutive terms.	PC	Chair 1 year No member shall serve as chair for more than two (2) consecutive terms.	Yes PC, elects	The mayor, with the advice and consent of the city council, may remove any member of the commission without cause.

		member. The senior alternate member will be the first to replace an absent regular member.					
Harrisville	3 - 5	As needed; stands in for full-time member	4 years;	PC	1 year	Yes PC, elects	A member may be removed by the Mayor at any time, subject to the advice and consent of the City Council.
Fruit Heights	5 All members of the planning commission must be bona fide residents and qualified electors of the city.	N/A	3 years; and shall not serve more than two (2) consecutive terms.	Mayor	one year and shall not hold the position of chair for more than two (2) consecutive one year terms.	if needed, mayor appoints, same process as chair	may be removed for cause by the mayor with the advice and consent of the city council, upon written charges and after a public hearing (if a public hearing is requested by the member being removed). Cause shall include, but not be limited to, violations of the Utah Municipal Officers' and Employees' Ethics Act, Utah Code Annotated Section 10-3-1301 et seq., or its successor.
Town/ City	# PC Members	Alts?	Term of Members	Chair Appointed by	Term of chair	Vice Chair?	Removal

Note the term elector means a qualified voter.

File Attachments for Item:

3. Consideration and Possible Adoption of Ordinance 2025-O-XX, Amending Hideout Municipal Code 5.04.075 to Align Construction Hours with Section 10.04.32.

TOWN OF HIDEOUT, UTAH
STAFF REPORT

Date: October 9, 2025

To: Honorable Mayor and Town Council

From: Alicia Fairbourne, Town Recorder

Subject: Correction to Hideout Municipal Code Section 5.04.075 – Construction Hours of Operation

Purpose

To consider and adopt Ordinance 2025-O-__, amending Hideout Municipal Code (HMC) 5.04.075 to align construction hours of operation with the updated provisions of HMC 10.04.32, as adopted under Ordinance 2025-O-04 in May 2025.

Background

In May 2025, the Town Council adopted Ordinance 2025-O-04, revising Section 10.04.32 of the Municipal Code to adjust the allowable hours of construction, grading, and excavation activities. The amendment established updated operational hours to balance residential livability with the needs of the construction community. However, a related provision in Title 5 (HMC 5.04.075) also governs construction hours and was inadvertently not updated at that time. As a result, two conflicting sections now exist within the Municipal Code.

Section 10.04.32 currently allows construction work between 7:00 a.m. and 7:00 p.m. Monday through Friday, and between 10:00 a.m. and 5:00 p.m. on Saturdays, Sundays, and holidays. Section 5.04.075, however, still references 8:00 a.m. to 7:00 p.m. on weekends and holidays. Staff recommends amending Section 5.04.075 to ensure internal consistency and to facilitate clear and enforceable standards.

Analysis

The proposed amendment corrects a clerical oversight and provides uniformity across related sections of the Code. This clarification benefits both residents and construction operators by reducing confusion regarding the Town's enforceable construction hours.

The amendment does not introduce new policy but merely aligns the existing provisions. Enforcement procedures and penalties for violations remain unchanged.

Proposed Amendment

Amend Section 5.04.075 to read as follows:

Construction, including grading and excavation, work shall not be performed outside the hours of 7:00 a.m. to 7:00 p.m. Monday through Friday; or outside of the hours of 10:00 a.m. to 5:00 p.m. on Saturday, Sunday, or holidays. Construction equipment and construction trailers may only be moved within the Town during those same hours.

Recommendation

Staff recommends approval of Ordinance 2025-O-__, amending Hideout Municipal Code 5.04.075 to align with the construction hours established in HMC 10.04.32.

Proposed Motion

I move to approve Ordinance 2025-O-__, amending Hideout Municipal Code 5.04.075 to align construction hours with Section 10.04.32, as presented.

ORDINANCE 2025-O-XX

AN ORDINANCE AMENDING HIDEOUT MUNICIPAL CODE SECTIONS 5.04.075 AND 10.04.32 TO ALIGN CONSTRUCTION HOURS OF OPERATION WITH THE HIDEOUT TOWN STANDARD SPECIFICATIONS AND DRAWINGS MANUAL

WHEREAS, the Town Council of the Town of Hideout, Utah ("Town") previously adopted Ordinance 2025-O-04 on May 8, 2025, amending Section 1.5 of the Hideout Town Standard Specifications and Drawings Manual which in subsection (A)(5) updated hours of construction operation as permitted by Section 10-10-02; and

WHEREAS, Section 5.04.075 of the Hideout Municipal Code also governs construction noise and hours of operation but was inadvertently not amended to reflect the new standards; and

WHEREAS, Section 10.04.32 of the Hideout Municipal Code additionally governs construction noise and hours of operation but was inadvertently not amended to reflect the new standards; and

WHEREAS, the Town Council finds it necessary and appropriate to amend Sections 5.04.075 and 10.04.32 to ensure consistency across the Code and to promote the public health, safety, and welfare of residents and the construction community.

NOW THEREFORE, BE IT ORDAINED by the Town Council of the Town of Hideout, Utah, as follows:

Section 1. Amendment to Hideout Municipal Code 5.04.075
Section 5.04.075 of the Hideout Municipal Code is hereby amended to read as follows:

5.04.075 NOISE
A. . . . .

B. Construction Noise and Hours of Operation:

1. Hours of Construction Work: It shall be unlawful for any person to perform or cause to be performed, any construction work on any construction site under his control (or at which he is employed) outside of the hours of 7:00 am to 7:00 pm Monday through Friday; or outside of the hours of ~~8:00~~10:00 am to ~~7:00~~5:00 pm on ~~any~~ Saturday, Sunday or ~~federal holiday~~ holidays.
Construction equipment and/or construction trailers may only be moved within the Town during those same hours.

2. Definitions:

   CONSTRUCTION WORK: Shall be defined as any building activity for which a permit shall be required under Town Code. A construction site is all area within the legal property boundary on which construction work is taking place.

3. Exception: The Mayor, Town Council or Town Engineer may authorize extended hours for construction operations or procedures which, by their nature, require continuous operation, or modify or waive the hours of work on projects located in generally isolated areas where the extended hours do not impact on adjoining property occupants. Such extension authorizations must be provided in writing.

4. Construction Noise: Some loud noise is inherent in construction work. During permitted construction hours on any Saturday, Sunday or federal holiday, noise resulting from construction work must not measure more than 60 decibels 25 feet outside the property boundary of the construction site.

C. . . .

Section 2. Amendment to Hideout Municipal Code 10.04.32
Section 10.04.32 of the Hideout Municipal Code is hereby amended to read as follows:

10.04.32 HOURS OF OPERATION

1. It shall be unlawful for any person to perform, or cause to be performed, any construction work on any work site outside of the hours of 7:00 am to 7:00 pm Monday through Friday; or outside of the hours of ~~8:00~~10:00 am to ~~7:00~~ 5:00 pm on ~~any~~ Saturday, Sunday or ~~federal~~ holidays.

2. It shall also be unlawful to move construction equipment and/or construction trailers during those same hours.

3. The Town office may authorize extended hours for construction operations or procedures which, by their nature, require continuous operations.

Section 3. Severability
If any provision of this ordinance or its application to any person or circumstance is held invalid, the invalidity shall not affect other provisions or applications of this ordinance which can be given effect without the invalid provision or application, and to this end, the provisions of this ordinance are severable.

Section 4. Effective Date
This ordinance shall become effective immediately upon publication or posting as required by law.

PASSED AND ADOPTED by the Town Council of the Town of Hideout, Utah this ___ day of _____, 2025.

BY:

_____
Ralph Severini, Mayor

ATTEST:

_____

_____, Recorder for Hideout

File Attachments for Item:

5. Discussion regarding egress into Jordanelle State Park - *Presented by Council Member Gunn*

ORDINANCE 2025-O-XX

AN ORDINANCE ADOPTING TITLE X, SECTION XX, CHAPTER XXX OF THE HIDEOUT MUNICIPAL CODE REGULATING VEHICLE ACCESS AND USE OF THE EMERGENCY EGRESS LOCATED ALONG THE EASTERN EDGE OF JORDANELLE STATE PARK

WHEREAS, the Town of Hideout is located in a region with very high risks for wildfires which present a threat to the life, health, welfare, safety, and property of Hideout and its residents; and

WHEREAS, a wildfire or other event(s) may require rapid evacuation of some, many, or all Town residents in order to prevent the loss of life and property, and there is a need to facilitate rapid emergency and emergency vehicle responses; and

WHEREAS, keeping the emergency egress that runs along the east end of the Jordanelle State Park continuously clear of obstruction(s) in order to facilitate emergency evacuation(s) and emergency response(s) is in the Town's and its residents' best interests;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF HIDEOUT, UTAH, AS FOLLOWS:

SECTION I. ADOPTION.
Title X, Section XX, Chapter XXX of the Hideout Municipal Code is hereby adopted to read as follows:

Chapter XXX
Emergency Egress Access Regulations

XX.XX.XX Emergency Egress Restrictions

(a) Use Restriction.
The emergency egress running along the eastern edge of the Jordanelle State Park is closed to privately owned motor, motorized, and motor-driven vehicles. No privately owned motor, motorized, or motor-driven vehicle shall utilize, traverse, or use the emergency egress except with the prior written permission of the Mayor, Director of Public Works, or the Town Administrator. Any such permission shall be limited to:
(i) a specific purpose; and
(ii) a specific period of time.
Such permission shall be for the purposes of maintenance, repair, and/or enhancement of the egress itself, utilities, fencing, retaining walls, or other related structures and systems. Under no circumstances shall any such vehicle be left on the emergency egress unattended for any period of time.

(b) Exceptions.
The following privately owned vehicles are exempt from paragraph (a) above:
(i) Electrically powered Class I, II, or III electric bicycles (E-bikes) and bicycles weighing less than 100 pounds; and
(ii) Vehicles owned or operated by the Town, County, State, and/or Federal governments.

(c) Violations.
Each violation of paragraph (a) above shall subject the violator(s) to a $1,000 fine per occurrence and shall further subject the violating vehicle to being towed and stored at the owner(s)' expense.

SECTION II. SEVERABILITY.
If any section, subsection, sentence, clause, phrase, or portion of this ordinance is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct, and independent provision, and such holding shall not affect the validity of the remaining portions hereof.

SECTION III. EFFECTIVE DATE.
This Ordinance shall take effect upon publication or posting as required by law.

PASSED AND ADOPTED by the City Council of Hideout, Utah, this ___ day of _____, 2025.

By:

_____
Ralph Severini, Mayor

ATTEST:

_____

_____, Recorder for Hideout

File Attachments for Item:

6. Consideration of Ordinance NO. 2025-XX amending Hideout Municipal Code Section 1.10.050 to establish agenda placement and submission and distribution deadlines for council meeting materials - *Presented by Council Member Gunn*

ORDINANCE NO. 2025-O-XX
AN ORDINANCE AMENDING HIDEOUT MUNICIPAL CODE SECTION 1.10.050 TO ESTABLISH AGENDA PLACEMENT AND SUBMISSION AND DISTRIBUTION DEADLINES FOR COUNCIL MEETING MATERIALS

Commented [AF1]: Or ADOPTING

Commented [AF2]: Or new code number if adopting

WHEREAS matters that come before the Town Council are often critical to the Town's long-term health, safety and success and therefore require careful consideration; and

WHEREAS matters coming before the council are often complex and are frequently accompanied by voluminous documents and/or reports; and

WHEREAS careful consideration requires adequate time to review and consider maters; and

WHEREAS the Council wishes to put all persons on notice of its strong desire to have adequate opportunity to fully review and carefully consider all matters, documents and reports that may come before it;

NOW, THEREFORE, BE IT ORDAINED BY THE TOWN COUNCIL OF HIDEOUT, UTAH, AS FOLLOWS:

xxx.xx.xx (a) Submission of Outside Documents to Town Clerk. Absent an emergency or exception as defined in section (c) below, the Council will decline to consider any outside development agreement, contract, proposal, permit, application or other document (including revisions of previously submitted documents) not submitted to the Town Clerk more than Fourteen (14) calendar days (Twenty one (21) days for Master Development Agreements or other contracts exceeding 25 pages) in advance of any regularly scheduled Council meeting. Comments by interested stakeholders are exempt from this Section.

xxx.xx.xx(b) Submission of Documents to Individual Council members. Absent an emergency or exception as defined in Section (c) below, the Council will decline to review or consider any development agreement, contract, proposal, permit, application or internal or external report (including those from Hideout Staff and Contractors) or any other document, including revisions of previously submitted documents, if not submitted to individual Council members for review and consideration more than Sixty (60) hours prior to the start of any regularly scheduled Council meeting. Comments by interested stakeholders are exempt from this section.

(c) Emergencies and exceptions. Sections (a) and (b) above may be waived by the Council by a simple majority vote for urgent matters that are unforeseeable or which materially threaten the health, wellbeing, safety or financial condition of the Town or any resident, property owner, visitor or other stakeholder. The Council may also vote, by simple majority, to waive this Section when the Council deems it in the Town's best interests.

Section II. Effective Date.
This ordinance shall take effect upon publication.
PASSED AND ADOPTED by the Town Council of Hideout, Utah, this ____ day of _____, 2025.

TOWN OF HIDEOUT, UTAH

_____
Ralph Severini, Mayor

ATTEST:

_____

_____, Recorder for Hideout

File Attachments for Item:

7. Discussion and possible adoption of Resolution 2025-R-XX Appointing a Chief Administrative Officer and Records Officer(s) in Compliance with the Government Data Privacy Act (GDPA)

Resolution No. _____

A RESOLUTION OF THE CITY/TOWN COUNCIL OF XXXXX, UTAH, APPOINTING A CHIEF ADMINISTRATIVE OFFICER AND RECORDS OFFICER(S) IN COMPLIANCE WITH THE GOVERNMENT DATA PRIVACY ACT (GDPA)

WHEREAS, Utah law, under the Government Data Privacy Act (GDPA), requires each state agency to implement a privacy program – including designation of a Chief Administrative Officer (CAO) and appointment of Records Officer(s); and

WHEREAS, the Utah Office of Data Privacy's Privacy Program Framework provides guidance requiring specification of who is responsible for privacy program implementation; and

WHEREAS, GDPA mandates that each agency designates a CAO responsible for establishing and maintaining the agency's privacy and records management program; and

WHEREAS, the act also requires that the CAO appoint one or more Records Officers who will ensure the care, maintenance, classification, retention, access, and preservation of records in alignment with CAO-established policies;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY/TOWN COUNCIL OF XXXXX, UTAH, AS FOLLOWS:

1. **Designation of Chief Administrative Officer (CAO)**. Jan McCosh, Town Administrator is hereby designated as the CAO for Town of Hideout. The CAO shall establish, manage, and maintain an ongoing privacy and records management program consistent with Utah law and the Privacy Program Framework.

2. **Appointment of Records Officer(s).** The CAO shall appoint the following Records Officer(s). Alicia Fairbourne, Recorder. Records Officer(s) will implement and maintain privacy and records practices as detailed in the agency's privacy program and framework guidance.

3. **Roles and Responsibilities**.
    - CAO Responsibilities: Develop and maintain formal privacy and records policies and procedures. Oversee their effective implementation throughout

the agency. Report the CAO designation to the Division of Archives and Records Service (DARS), consistent with statute.

- Records Officer Responsibilities: Manage care, maintenance, scheduling, classification, retention, disposal, access, and preservation of records. Execute all records and privacy policies established by the CAO.

4. **Effective Date.** This resolution shall take effect immediately upon passage and adoption.

PASSED AND ADOPTED by the City/Town Council of XXXXX, Utah, this ____ day of ____, 20___.

XXXXXX, UTAH

By: _____

XXXXXX, Mayor

Attest: _____

XXXXXX, City/Town Recorder

Vote	Aye	Nay	Abstain
Mayor	☐	☐	☐
Council Member	☐	☐	☐
Council Member	☐	☐	☐
Council Member	☐	☐	☐
Council Member	☐	☐	☐

File Attachments for Item:

8. Discussion and possible approval of interlocal agreements with Hideout Local District 1 relating to infrastructure control and maintenance, non-opposition to proposed district boundary expansion, and provision of billing services

INTERLOCAL COOPERATION AGREEMENT BETWEEN TOWN OF HIDEOUT AND HIDEOUT LOCAL DISTRICT 1

This Agreement ("Agreement") is made and entered into this [DATE] day of _____20__, (the "Effective Date"), by and between Town of Hideout ("Town") and Hideout Local District 1, ("District"), bodies corporate and politic of the state of Utah.

The Interlocal Cooperation Act, Title 11, Chapter 13, Utah Code Ann. 1953, as amended, authorizes public agencies to enter into Agreement with one another for cooperative action and to provide services they are each authorized by statute to provide as permitted by Utah Code 11-13-202;

Hideout Local District 1 (HLD) is responsible to accept and maintain road, sanitary sewer and storm drain in Golden Eagle Subdivision.

As a part of consideration to this Agreement, the parties have negotiated an agreement on the town not opposing certain areas to be annexed to the District boundary so long as Town engineering standards are adhered to.

The intent is to fairly allocate taxes and fees collected by Hideout Town between Hideout Town and the Hideout Local District for these services to ensure that the of the residents of Hideout Town and within the boundaries of HLD and to ensure the residents are not double taxed or charged for the same service twice.

As already accepted, Hideout Town is responsible to inspect, accept, maintain, and manage both the water systems in Golden Eagle. Hideout Town charges for water service and connections and building permit fees related to water. Hideout Town continues to collect impact fees pursuant to Ordinance 2020-08 Enacting Impact Fees.

SEWER SYSTEM

Hideout Local District handles and is responsible for the sewer system (which it has already accepted and certified that it is substantially complete or completed) and inspects, maintains, and manage the sewer system within the agreed upon areas.

Hideout Town will charge homeowners for the cost that JSSD charges Hideout Town for receiving sewer for ultimate treatment.

If the sewer system ties into Hideout Town's general sewer system, Hideout Town might charge the homeowner a monthly sewer fee for the costs associated with the downstream costs. If not, Hideout Town shall not be due or paid any sewer fees.

Hideout Local District will charge fees associated with its services provided for the maintenance of the sewer system.

Hideout Local District will inspect sewer laterals installed by homeowners and assess a fee to homeowner. If a fee has already been assessed a fee from Hideout Town, but inspection has not taken place, said fee will be passed on to HLD and HLD will be responsible for inspection.

STORM DRAIN

Hideout Local District is responsible for the storm drain system (which it has already accepted as being substantially complete or completed) which includes, managing, inspecting, maintaining.

Hideout Town may charge homeowner for costs associated to the downhill storm drain that receives water from homes that are within the HLD boundaries.

HDL will collect fees associated with storm drain services that it provides.

ROADS

HLD will provide a report for Hideout Town to submit for B and C road funds that are available to municipalities. Report will include road lengths, and surface type. Funds received will be passed on to the HLD within one week of receiving said funds.

Hideout Local District will be responsible for roads it accepts and will inspect, maintain, and manage the road system. HLD have certified that the Roads are substantially completed or complete.

HLD will plow, remove snow where needed, and repair and maintain roads in Golden Eagle and other mutually agreed upon areas, subject to future annexation processes.

Hideout Town will be responsible for removing snow around fire hydrants located in Golden Eagle, since they are part of the water system.

Hideout Town shall pass on to Hideout Local District for all such relevant fees that have been collected as part of building permits in Golden Eagle.

The Town agrees to pass on any funds paid by Mustang Development, related to the plowing of roads, to HLD within 14 days of receipt.

IMPACT FEES

Hideout Town will continue to collect impact fees for roads, storm drain, and sewer in accordance with Ordinance 2020-08 and the Hideout Fees and Rate Schedule.

Hideout Local District may conduct its own impact fee study.

BILLING COOPERATION

The Parties agree to enter into a mutually agreeable billing services agreement.

DURATION OF AGREEMENT.
The term of this Agreement shall commence on the Effective Date and shall terminate fifty years after the effective date.

INTERLOCAL COOPERATION ACT REQUIREMENTS. In satisfaction of the requirements of the Utah Interlocal Cooperation Act, Title 11, Chapter 13, Utah Code Ann. 1953, as amended, the Town and the District agree as follows:

a. This Agreement shall be conditioned upon the approval and execution of this Agreement by the Town and the District.

b. This Agreement shall be administered by the Mayor of the Town and the Manager of the District.

c. The respective budgets for this Agreement shall be financed, established, and maintained by the Town and the District.

d. This Agreement shall be submitted to the attorneys authorized to represent Town and the District for review as to proper form and compliance with applicable law, as established by the respective attorneys affixing their signatures to this Agreement before this Agreement may take effect.

e. A duly executed copy of this Agreement shall be immediately filed with the keeper of records for both the Town and the District.

f. This Agreement shall not take effect until it is filed with the keeper of the records of the Town and the District.

g. Should any provision of this Agreement be determined to be void, invalid, unenforceable or illegal for whatever reason, such provision(s) shall be null and void; provided, however, that the remaining provisions of this Agreement shall be unaffected thereby and shall continue to be valid and enforceable.

IN WITNESS WHEREOF the Parties hereto have caused this Agreement to be executed the day and year first hereinabove written.

TOWN OF HIDEOUT

By: _____

Ralph Severini, Mayor of Town

_____

Date: _____

APPROVED AS TO FORM AND LEGALITY

By: _____

Polly McLean, Attorney for Town

Date: _____

RECORDER FOR TOWN

By: _____

_____, City Recorder for Town

Date: _____

HIDEOUT LOCAL DISTRICT 1

By: _____

Dave Merrell, Manager of HIDEOUT LOCAL DISTRICT 1

Date: _____

APPROVED AS TO FORM AND LEGALITY

By: _____

Brad Christopherson, Attorney for HIDEOUT LOCAL DISTRICT 1

Date: _____

CLERK Hideout Local District 1

By: _____

[NAME], Clerk for Hideout Local District 1

Date: _____

AGREEMENT BETWEEN HIDEOUT TOWN AND HIDEOUT LOCAL DISTRICT #1 REGARDING NON-OPPOSITION TO ANNEXATION

This **Agreement** ("Agreement") is made and entered into this ___ day of _____**, 20**, by and between **Hideout,** a Utah municipal corporation and political subdivision of the State of Utah ("Town"), and **Hideout Local District 1**, a local district organized and existing under Title 17B of the Utah Code ("District"). The Town and the District are sometimes referred to collectively as the "Parties" and individually as a "Party."

RECITALS

WHEREAS, the District is a local district duly organized under the Utah Local Districts Act, Utah Code Title 17B, and provides various services within its authorized service area; and

WHEREAS, the Town is a municipal corporation organized under Utah Code Title 10 and exercises general governmental powers within its corporate boundaries; and

WHEREAS, certain property located within, adjacent or contiguous to the Town's municipal boundaries, more particularly described in **Exhibit A** attached hereto and incorporated herein by this reference (the "Property"), has been or will be proposed for annexation into the District pursuant to Utah Code § 17B-1-417 et seq.; and

WHEREAS, the District is contemplating entering into other inter-local agreements with the Town of Hideout, and

WHEREAS, this Agreement is in consideration of those other Agreements that the District is contemplating entering into; and

WHEREAS, the Town has reviewed the proposed areas for annexation and finds that annexation of the Property into the District will promote efficient service delivery and is consistent with the public interest; and

WHEREAS, the District seeks the Town's written acknowledgment and non-opposition to the future annexation as part of the administrative review process that would occur in the future;

WHEREAS, the engineering for the infrastructure in the annexation area will meet the current requirements for engineering standards in the Town

NOW, THEREFORE, in consideration of the mutual covenants and promises set forth herein, and pursuant to the Utah Interlocal Cooperation Act, Utah Code Title 11, Chapter 13, the Parties agree as follows:

AGREEMENT

1. **Non-Opposition.**

The Town agrees that it will not oppose or object to the annexation of the Property into the District, provided that the annexation is conducted in accordance with applicable provisions of Utah law, including Utah Code § 17B-1-417, and does not impose financial, operational, or administrative obligations upon the Town.

2. **No Assumption of Responsibility.**

The Town shall not, by virtue of this Agreement, assume any responsibility for the financing, construction, maintenance, or operation of any improvements or services provided by the District within the Property.

3. **No Precedent Established.**

This Agreement is specific to the Property identified in Exhibit A and shall not be construed as a precedent or policy binding the Town in connection with any future proposed annexations to the District or any other district.

4. **Term and Termination.**

This Agreement shall remain in full force and effect until completion of the annexation process for the Property, unless earlier terminated by mutual written consent of both Parties.

5. **Entire Agreement.**

This Agreement constitutes the entire understanding between the Parties regarding the subject matter and supersedes all prior or contemporaneous agreements or communications, whether written or oral.

6. **Execution.**

This Agreement may be executed in counterparts, each of which shall be deemed an original, and all of which together shall constitute one and the same instrument. Signatures transmitted electronically or by facsimile shall be deemed valid and binding for all purposes.

IN WITNESS WHEREOF, the Parties have executed this Agreement as of the date first written above.

HIDEOUT TOWN

By: _____
Name: _____
Title: _____
Date: _____

HIDEOUT LOCAL DISTRICT #1

By: _____
Name: Dave Merrell
Title: Manager
Date: _____

EXHIBIT A
LEGAL DESCRIPTION OF PROPERTY TO BE ANNEXED

The Property subject to this Agreement is legally described as follows:

PARCEL A

A PORTION OF REAL PROPERTY LOCATED IN THE NORTHEAST ¼ OF SECTION 21, TOWNSHIP 2 SOUTH RANGE 5 EAST, SALT LAKE BASE & MERIDIAN PER ENTRY #452600 RECORDED JUNE 11, 2018 IN BOOK 1225 AT PAGE 482-485 AND ENTRY #459403 RECORDED DECEMBER 28, 2018 IN BOOK 1241 PAGE 1273-1278 AT THE OFFICE OF THE RECORDER OF WASATCH COUNTY.

SAID PORTION OF PROPERTY IS MORE PARTICULARLY DESCRIBED BY RETRACEMENT SURVEY AS BEGINNING AT THE EAST 1/16 CORNER OF SECTION 21 & 16, TOWNSHIP 2 SOUTH RANGE 5 EAST, SALT LAKE BASE & MERIDIAN

THENCE COINCIDENT WITH THE SECTION LINE NORTH 89°43'47" EAST 1,007.95 FEET TO THE WEST BOUNDARY OF GOVERNMENT LOT 8 COINCIDENT WITH THE EAST BOUNDARY OF STAR NO.8 PATENTED LODE MINING CLAIMS, M.S. 6968 AS THE SAME IS MORE PARTICULARLY DESCRIBED IN THAT CERTAIN UNITED STATES MINERAL ENTRY PATENT RECORDED APRIL 13, 1934 AS ENTRY #50880 IN BOOK 10 OF MINING DEEDS AT PAGE 301 AT THE OFFICE OF THE RECORDER OF WASATCH COUNTY; THENCE SOUTH 23°01'23" EAST 6.73 FEET COINCIDENT WITH THE WEST BOUNDARY OF GOVERNMENT LOT 8 AND THE EAST BOUNDARY OF SAID STAR NO.8 TO CORNER 4 STAR NO.8 COMMON WITH CORNER 2 STAR NO.7; CONTINUING SOUTH 23°01'23" EAST 340.01 FEET COINCIDENT WITH EAST BOUNDARY OF SAID STAR NO.7 AND SAID GOVERNMENT LOT 8 TO THE MOST NORTHERLY CORNER OF THAT REAL PROPERTY PER ENTRY #281639 (RECORDED APRIL 8, 2005 IN BOOK 747 PAGE 215 AT THE OFFICE OF THE RECORDER OF WASATCH COUNTY); THENCE COINCIDENT WITH SAID ENTRY #281639 SOUTH 41°22'34" WEST 263.71 FEET TO THE BEGINNING OF A CURVE CONCAVE EASTERLY, SAID CURVE HAS A RADIUS OF 429.02 FEET; SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 41°06'53" AN ARC DISTANCE OF 307.86 FEET TO A POINT ALONG THE COMMON BOUNDARY OF STAR NO.7 AND STAR NO.5; CONTINUING COINCIDENT WITH SAID ENTRY #281639 AND SAID COMMON BOUNDARY OF STAR NO.7 AND STAR NO. 5 NORTH 58°36'37" EAST 451.32 FEET TO CORNER 3 STAR NO.7 COMMON WITH CORNER 3 STAR NO.5 AND THE WEST BOUNDARY OF GOVERNMENT LOT 8; THENCE SOUTH 23°01'23" EAST 189.01 FEET COINCIDENT WITH THE EAST BOUNDARY OF SAID STAR NO.5 AND SAID GOVERNMENT LOT 8 TO A POINT OF INTERSECTION WITH THE EAST BOUNDARY OF SECTION 21, TOWNSHIP 2 SOUTH RANGE 5 EAST, SALT LAKE BASE & MERIDIAN; THENCE SOUTH 0°06'18" EAST 482.28 FEET COINCIDENT WITH THE SECTION LINE TO THE INTERSECTION OF SAID STAR NO.5 AND GOVERNMENT LOT 9 AND GOVERNMENT LOT 5; THENCE SOUTH 58°36'37" WEST 132.17 FEET COINCIDENT WITH THE NORTH BOUNDARY OF GOVERNMENT LOT 9 AND SOUTH

BOUNDARY OF SAID STAR NO.5 TO CORNER 2 STAR NO. 4 PATENTED LODE MINING CLAIM; THENCE SOUTH 23°01'23" EAST 290.06 FEET COINCIDENT WITH THE EAST BOUNDARY OF SAID STAR NO.4 TO THE SECTION LINE THENCE SOUTH 0°06'18" EAST 34.05 FEET ALONG THE SECTION LINE TO THE RETRACED NORTHERLY LINE OF SR-248 AND THOSE PORTIONS CONVEYED TO THE UNITED STATES OF AMERICA PER ENTRY #144829 (RECORDED FEBRUARY 1, 1988 IN BOOK 197 PAGE 386 AT THE OFFICE OF THE RECORDER OF WASATCH COUNTY; THENCE COINCIDENT WITH SAID NORTHERLY LINE OF SR-248 SOUTH 87°01'01" WEST 30.05 FEET, NORTH 73°41'35" WEST 211.90 FEET, SOUTH 87°01'01" WEST 900.00 FEET AND NORTH 83°03'25" WEST 203.04 FEET; CONTINUING SOUTH 87°01'01" WEST 1,309.17 FEET PER COINCIDENT WITH SAID NORTHERLY LINE OF SR-248 AND SAID ENTRY #144829 AND THOSE PORTIONS CONVEYED TO THE UNITED STATES OF AMERICA PER ENTRY #145224 (RECORDED MARCH 23, 1988 IN BOOK 198 PAGE 505) AND THE RETRACED CENTER OF SECTION LINE; THENCE NORTH 0°03'48" WEST 293.94 FEET TO THE NORTH 1/16 CORNER OF SECTION 21 TOWNSHIP 2 SOUTH RANGE 5 EAST, SALT LAKE BASE & MERIDIAN; THENCE SOUTH 89°53'05" EAST 1,320.48 FEET COINCIDENT WITH 1/16 SECTION LINE TO THE NORTHEAST 1/16 CORNER OF SECTION 21, TOWNSHIP 2 SOUTH RANGE 5 EAST, SALT LAKE BASE & MERIDIAN; THENCE NORTH 0°05'04" WEST 1,326.11 FEET COINCIDENT WITH 1/16 SECTION LINE TO THE EAST 1/16 CORNER OF SECTION 21 & 16, TOWNSHIP 2 SOUTH RANGE 5 EAST, SALT LAKE BASE & MERIDIAN AND POINT OF BEGINNING

WITH AN AREA OF 50.128 ACRES OF 2,183,571 S.F.

PARCEL B

A PORTION OF REAL PROPERTY LOCATED IN THE NORTHWEST ¼ OF SECTION 21, TOWNSHIP 5 SOUTH RANGE 2 EAST SALT LAKE BASE & MERIDIAN. SAID PORTION IS INCLUDED WITHIN THE DESCRIPTION OF BOTH ADA LLC, PER ENTRY 277699 RECORDED DECEMBER 6, 2004 IN BOOK 0725 PAGE 0698-0699 AT THE OFFICE OF THE RECORDER OF WASATCH COUNTY AND MUSTANG DEVELOPMENT, LLC PER ENTRY 452600 RECORDED JUNE 11, 2018 IN BOOK 1225 PAGE 483-485 AT THE OFFICE OF RECORDER OF WASATCH COUNTY

SAID PORTION OF REAL PROPERTY IS PER AN ALTA/NSPS LAND TITLE SURVEY PREPARED FOR MUSTANG DEVELOPMENT, LLC A UTAH LIMITED LIABILITY COMPANY & RAVEN ROCK, LLC A UTAH LIMITED LIABILITY COMPANY DATED JULY 31, 2025 WITH A REVISION DATE OF SEPTEMBER 30th, 2025, TO BE FILED AT THE OFFICE OF THE SURVEYOR OF WASATCH COUNTY.

FOR THE FOLLOWING DESCRIPTION THE BASIS OF BEARINGS IS SOUTH 0°06’23” EAST BETWEEN THE NORTHWEST CORNER AND THE WEST ¼ CORNER OF SECTION 21, TOWNSHIP 5 SOUTH RANGE 2 EAST, SALT LAKE BASE & MERIDIAN PER SAID ALTA/NSPS LAND TITLE SURVEY;

BEGINNING AT THE INTERSECTION OF THE RETRACED 1/16 SECTION LINE OF THE NW ¼ OF SAID SECTION 21 AND THE RETRACED WESTERLY BOUNDARY OF THE STAR NO. 6 PATENTED LODE MINING CLAIM, M.S. 6968 AS THE SAME IS MORE PARTICULARLY DESCRIBED IN THAT CERTAIN UNITED STATES MINERAL ENTRY PATENT RECORDED APRIL 13, 1934 AS ENTRY NO. 50880 IN BOOK 10 OF MINING DEEDS AT PAGE 301 OF THE OFFICIAL RECORDS OF THE WASATCH COUNTY RECORDER; SAID POINT OF BEGINNING IS FURTHER DESCRIBED AS LOCATED SOUTH 0°06'23" EAST 1298.90 FEET AND SOUTH 89°53'11" EAST 2401.56 FEET FROM THE NORTHWEST CORNER OF SECTION 21; THENCE SOUTH 89°53'11" EAST 334.34 FEET ALONG SAID 1/16 SECTION LINE TO THE RETRACED NORTH 1/16 CORNER OF SAID SECTION 21; THENCE SOUTH 0°03'48" EAST 293.93 ALONG THE RETRACED CENTER OF SECTION LINE TO THE INTERSECTION OF THE RETRACED CENTER OF SECTION LINE AND RETRACED NORTHERLY LIMIT OF SR-248; THENCE SOUTH 87°01'01" WEST 205.22 FEET COINCIDENT WITH SAID NORTHERLY LIMIT OF SR-248 TO THE INTERSECTION WITH THE RETRACED WESTERLY BOUNDARY OF THE STAR NO. 9 PATENTED LODE MINING CLAIM, M.S. 6968 AS THE SAME IS MORE PARTICULARLY DESCRIBED IN THAT CERTAIN UNITED STATES MINERAL ENTRY PATENT RECORDED APRIL 13, 1934 AS ENTRY NO. 50880 IN BOOK 10 OF MINING DEEDS AT PAGE 301 OF THE OFFICIAL RECORDS OF THE WASATCH COUNTY RECORDER) THENCE NORTH 23°01'23" WEST 331.69 ALONG SAID RETRACED WESTERLY BOUNDARY OF STAR NO.9 AND CONTINUING ALONG SAID RETRACED WESTERLY BOUNDARY OF STAR NO.6 TO THE 1/16 SECTION LINE AND POINT OF BEGINNING

WITH AN AREA OF 81,109 SQUARE FEET OR 1.862 ACRES

PARCEL C

A PORTION OF REAL PROPERTY LOCATED IN THE NORTHWEST ¼ OF SECTION 22, TOWNSHIP 5 SOUTH RANGE 2 EAST SALT LAKE BASE & MERIDIAN. SAID PORTION IS INCLUDED WITHIN THE DESCRIPTION OF BOTH JORDANELLE SUMMIT, PER ENTRY 294392 RECORDED DECEMBER 27, 2005 IN BOOK 0817 PAGE 0594-0595 AT THE OFFICE OF THE RECORDER OF WASATCH COUNTY AND RAVEN ROCK, LLC PER ENTRY 459403 RECORDED DECEMBER 28, 2018 IN BOOK 1241 PAGE 1273-1278 AT THE OFFICE OF RECORDER OF WASATCH COUNTY

SAID PORTION OF REAL PROPERTY IS PER AN ALTA/NSPS LAND TITLE SURVEY PREPARED FOR MUSTANG DEVELOPMENT, LLC A UTAH LIMITED LIABILITY COMPANY & RAVEN ROCK, LLC A UTAH LIMITED LIABILITY COMPANY DATED JULY 31, 2025 WITH A REVISION DATE OF SEPTEMBER 30th, 2025, TO BE FILED AT THE OFFICE OF THE SURVEYOR OF WASATCH COUNTY.

FOR THE FOLLOWING DESCRIPTION THE BASIS OF BEARINGS IS SOUTH 0°06'23" EAST BETWEEN THE NORTHWEST CORNER AND THE WEST ¼ CORNER OF SECTION 21, TOWNSHIP 5 SOUTH RANGE 2 EAST, SALT LAKE BASE & MERIDIAN PER SAID ALTA/NSPS LAND TITLE SURVEY;

BEGINNING AT A POINT OF INTERSECTION OF THE EAST BOUNDARY OF SECTION 21 AND THE RETRACED EAST BOUNDARY OF STAR NO.5 PATENTED LODE MINING CLAIM, M.S. 6968 AS THE SAME IS MORE PARTICULARLY DESCRIBED IN THAT CERTAIN UNITED STATES MINERAL ENTRY PATENT RECORDED APRIL 13, 1934 AS ENTRY NO. 50880 IN BOOK 10 OF MINING DEEDS AT PAGE 301 OF THE OFFICIAL RECORDS OF THE WASATCH COUNTY RECORDER; SAID POINT OF BEGINNING IS FURTHER DESCRIBED AS LOCATED NORTH 89°43’47” EAST 1320.00 FEET ALONG THE RETRACED NORTH LINE OF SECTION 21 AND SOUTH 0°06’05” WEST 738.86 FEET ALONG THE EAST LINE OF SECTION 21 FROM THE EAST 1/16 CORNER OF SECTION 21 & 16 THENCE SOUTH 0°06'05" EAST 482.45 FEET COINCIDENT WITH THE SECTION LINE TO THE INTERSECTION OF SAID STAR NO.5 AND GOVERNMENT LOT 9 AND GOVERNMENT LOT 5; THENCE NORTH 58°36'37" EAST 189.92 FEET COINCIDENT WITH THE SOUTH BOUNDARY OF SAID STAR NO.5 TO CORNER 4 STAR NO. 5 PATENTED LODE MINING CLAIM; THENCE NORTH 23°01'23" WEST 416.72 FEET COINCIDENT WITH THE EAST BOUNDARY OF SAID STAR NO.5 TO THE SECTION LINE AND POINT OF BEGINNING

WITH AN AREA OF 39,151 SQUARE FEET OR 0.899 ACRES