Nibley City
Planning Commission Meeting
Thursday, July 2, 2020
455 W. 3200 S.
Nibley, UT

6:30 p.m. Call to Order and Roll Call
Approval of Agenda
Approval of Minutes

1. Discussion and Consideration of a recommendation of approval for Ridgeline Park Phases 1-3 Preliminary Plat, located at approximately 340 W 3200 S. (Applicant: Visionary Homes)

2. **Workshop:** Residential Planned Unit Development Code Update

3. Staff Report and Action Items

Planning Commission agenda items may be tabled or continued if 1) Additional information is needed in order to take action on the item, OR 2) The Planning Commission feels there are unresolved issues that may need further attention before the Commission is ready to make a motion. ***No agenda item will begin after 10:00 p.m. without a unanimous vote of the Commission****. The Commission may carry over agenda items, scheduled late in the evening and not heard, to the next regularly scheduled meeting.*

IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT, REASONABLE ACCOMMODATIONS FOR INDIVIDUALS WITH DISABILITIES WILL BE PROVIDED UPON REQUEST. FOR ASSISTANCE, PLEASE CALL 752-0431 A MINIMUM OF 24 HOURS BEFORE THE MEETING.

Nibley City Planning Commission Agenda Item Report

July 2, 2020

Agenda Item #1: Preliminary Plat: Ridgeline Park Phases 1-3

Description

Discussion and Consideration of a recommendation of approval for Ridgeline Park Phases 1-3 Preliminary Plat, located at approximately 340 W 3200 S. (Applicant: Visionary Homes)

Department

City Planning

Action Type

Administrative

Recommendation

Recommend approval of Ridgeline Park Phases 1-3 Preliminary Plat with the findings noted below

Reviewed By

City Planner, City Engineer, Public Works, Fire Chief

Background

Update for June 2

A public hearing for this item was held on June 18. During the hearing, the Planning Commission determined that more information was needed prior to recommending approval of the preliminary plat. The applicant has re-submitted a plat. Staff has reviewed the updated plat and has determined that the majority of the information has been provided in conformance with City Code. At this point in time Staff recommends approval, conditional upon the findings noted at the end of this report.

Visionary Homes has applied for Preliminary Plat approval for Ridgeline Park Phases 1-3. Ridgeline Park is located within an R-PUD overlay zone, approved by the City Council on April 9. There are several requirements that must be met for the R-PUD, which are summarized as follows:

	R-PUD Requirements	Ridgeline Park Phase 1-3
Listed on R-PUD Application Map	Parcels need to be listed on the map	Yes
Total Gross Acres	N/A	28.75
Net Developable Acres	N/A	19.97
Total Open Space Land	35%	44.5%
Units Per Net Developable Acre	12 Max Units	6.45
Total Number of Single Family Lots	20% min	55%
Min Lot Size for Single Family Lots	4,500 sq. ft.	5,000 sq. ft.
Total Lots	N/A	129
Total Park Space Required	2.5 Acres with one swing set and one playground	3.33 acres, one playground, one swing set, pickleball court, pergola, pavilion
Parking	2 spaces for each unit (58), and one guest parking for every 3 units (20)	2 car garages with driveways and 21 on-street parking spaces

Utility Lines. Easements, and Storm Water

The applicant has shown a preliminary plan for connecting utilities to Nibley City's utility system, including locations of sewer and water lines. A diagram of standard public utility easements is also provided. Stormwater management is primarily planned to be provided with swales and a small detention pond in the HOA maintained park area. Nibley City's engineer and public works director are reviewing the plan to ensure compliance with City standards.

Canals

NCC 21.08.010 states:

Except as outlined in NCC 21.10.040, prior to approval of the preliminary plat, the subdivider shall provide the City with signed documentation that any affected canal company has had the chance to review plans related to the alteration of affected canals, and further, that the canal company understands they have thirty (30) days from the date of notification to bring any concerns to the City.

The applicant has indicated that they have communicated with the affected canal companies but has not provided documentation of this communication. This documentation is needed prior to approval.

Transportation

Nibley City's Transportation Master Plan shows a local roadway extension of 2965 South. This roadway is planned to connect to 2900 south at Hwy 165 during a later phase of the development. The alignment of the proposed roadway on the preliminary plat appears to match that of the approved concept plan. The concept plan also includes an entrance road at approximately 340 West, connecting to the 2965 S extension (Ropelato Dr). The remaining public streets provide further connectivity within the development. The applicant also proposes a private street to provide access to several of the proposed townhomes (lots 27-55). Upon completion of phase 2, there will be two access points for this stage of the development: 340 West and 2965 South.

The Applicant has submitted a Traffic Impact Study for the development "to determine the traffic impacts of the development on adjacent roadways, the adequacy of the proposed roadway cross-sections and any traffic improvements necessitated by project impacts." The study concludes "that all intersections adjacent to the project together with their individual movements continue to operate at LOS C or better through the 2026 study horizon" and proposes a handful of improvements to handle the increase in traffic. Regarding this phase of the development, the Study recommends a left turn bay on 340 West, which is detailed on the proposed preliminary plat.

Nibley City's Parks, Trails, Recreation and Open Space Master Plan shows a north/south oriented major trail (10' wide) through the proposed Ridgeline Park Development (City Center Trail). The applicant proposes to build and maintain the 10 foot trail and proposes an easement for this trail on the preliminary plat. The applicant has indicated crosswalks for all street crossings of proposed trail (Ropelato Dr, 400 W, 3085 S).

Parking

NCC 19.32.080-B-5 & 5. d. state:

5. Parking: Each R-PUD shall provide 2 primary parking spaces for each unit. Primary parking must be contained in a garage, carports, driveway, or parking court. An R-PUD shall provide one guest parking spot for every three units. Guesting parking may be located in parking courts or on street parking maintained by the owner association.

…

> *d. On-street parking shall be limited to local roads only. On-street parking shall have dedicated and marked spaces and must be approved by the City Engineer,*

The applicant proposes 2-car garages for each townhome unit, driveways with space to park 2 cars and 21 guest parking spaces provided on street. In addition, some on street parking is

provided near the two main recreational open space areas. Staff has determined that the parking requirement of the R-PUD is met with the proposed preliminary plat. However, the code says the engineer has to approve it and our engineer does not like this arrangement. He has concerns about maintenance, snow removal and how overnight parking might work in the winter.

Open Space and Maintenance Plan

The applicant has submitted a preliminary landscape and maintenance plan for the open space area surrounding the townhomes and the common area for the active adult homes. In total, the applicant proposes approximately 4 acres of open space over the course of developing the 3 phases. Proposed amenities include a pickle ball court, pergola, pavilion, playground, dog station, and a portion of the City Center Trail. The open space and amenities are proposed to be managed and maintained by the HOA.

In addition to the open space described above, a portion of the 18.3 acre City Park Space, located on the north side of Ropelato Dr, will be developed in proportional phases as required by NCC 19.32.050-A. City Staff is currently working with the developer on a Park Development Agreement that will detail the amenities, infrastructure, landscaping and development of the City Park. This agreement will need to be approved by the City Council, in conjunction with this application.

It is important to note in final plat approval there are more landscaping details needed as listed in NCC 19.32.080-B.

Recommended Findings:

1. City Engineer and Public Works Director approval is needed for the utility and stormwater plans.
2. Signed documentation is needed that any affected canal company has had the chance to review plans related to the alteration of affected canals, and further, that the canal company understands they have thirty (30) days from the date of notification to bring any concerns to the City.
3. The City Engineer must approve of street parking after his concerns are addressed.
4. Draft Park Development Agreement for the City Park needs to be finalized and ready for City Council review.
5. All streets must have a coordinate number as their primary name.

Agenda Item #2: Residential Planned Unit Development Code Update

Description

Workshop: Residential Planned Unit Development Code Update

Department

City Planning, Engineering, and Public Works

Action Type

Workshop

Recommendations

Discuss item in preparation for joint work session

Reviewed By

City Planner, City Manager

Background

The Planning Commission has discussed the Update of the R-PUD Ordinance during 2 workshop sessions. In addition to these workshops, Staff has met with individual Council members to discuss the deficiencies of the ordinance with a summary noted below. Also included below is information compiled previously in regard to this update. During the workshop sessions, the Planning Commission requested a financial analysis to support the provision of R-PUDs and potential adjustment. Staff is still working on developing this analysis. The Planning Commission also determined that it would be most productive to provide direction in conjunction with the City Council and recommended holding a joint work session with the Council. The purpose of this work session is to:

1. Clarify the goals of the R-PUD Ordinance
2. Determine what amendments are needed to support these goals

City Council- Staff interview summary

Staff has conducted interviews with individual City Council members and the Mayor. Based upon these discussions, the following ideas with regards to the R-PUD update were expressed:

- Desire to lower density and adjust unit split toward single-family homes (60/40 or 50/50)
- Add provision for more integration of unit types throughout development (less segregation of land uses)
- Only 'count' meaningful open space, not park strips and areas within right of way. Identify and prioritize the use of open space within proposed development.
- Consider adjusting minimum unit count for subdivision.
- Consider requiring more coordination/outreach with affected stakeholders (i.e. school district).
- Coordinate R-PUD with moderate-income housing needs identified in plan and annual report.
- Be cognoscente about retaining flexibility within code.

R-PUD update background information

Nibley City has received three applications for the new Residential Planned Unit Development (R-PUD). There has been a desire to make some changes to the ordinance to clarify open space calculation, the application process, zoning, etc.

At the City Council meeting held on March 26, 2020, the City Council passed *Ordinance 20- 08: Residential Planned Unit Development Moratorium.* This ordinance puts a six-month hold on all new R-PUD applications.

You can review the full code here:

Nibley City Code 19.32 Residential Planned Unit Developments

Open Space and Amenities

There has been general concern and agreement on updating the definition of open space within the development. Currently, the R-PUD code allows for open space to count any public landscaping contained with setbacks and within the right-of-way. Staff has eliminated the clause within the definition that would allow for open space within the right-of-way.

Proposed Open Space Definition

> Open Space: Any space in an R-PUD that does not contain any amenities, except for park amenities, as defined herein, buildings, parking lots or private yards. All Open Space must be completely landscaped with sod, trees, xeriscape, gardens or agricultural use. Natural features such as wetlands, meadows, tree stands and Constrained and Sensitive Lands may also be considered Open Space. Landscaping within building setbacks and right-of-ways shall not be counted towards the percentage of required landscaping.

Landscaping within the ROWs and setbacks shall still be required.

Open Space for the Public

One of the concerns voiced in public hearings and by some City Council and Planning Commission members is the lack of public amenities and the perceived benefit to surrounding neighborhoods. There has been a request for the City to require some amenities within the project to be given to the City.

Staff is requesting that the Planning Commission consider what these amenities would be like and how they could bring benefit to the general public. Some of these benefits could be public park amenities, trail spaces, open space next to adjacent homes, etc. The City Recreation Director is also reviewing this item and will provide a recommendation of adjustments to this provision of the code.

Density and Housing Mix

Another concern that has been expressed by the citizens, planning commissioners, and members of the city council is they would like to see a greater variety of housing types. This could reflect a change in the split of housing type, which right now allows for 80% of the units as townhomes and a minimum of 20% need to be single-family lots. Staff has provided some preliminary below:

Single-Family, Townhome, and Open Space Mix	
Single Family/Townhome	Open Space
20/80	40%

30/70	35%
40/60	30%
50/50	25%
All Single-Family	20%

*The townhome numbers would represent the max

Town Center Single-Family, Townhome, and Open Space Mix	
Single Family/Townhome/Condos	Open Space
20/40/40	40%
30/30/35	35%
40/30/30	30%
50/25/25	25%

*The condos and townhomes numbers would represent the max

Single-Family Lots
Min of 10% need to be .25 Acres in size
Average Lot Size 6,000 sq. ft.
Smallest Lot 4,500 sq. ft.

These tables above are loose recommendations, but more analysis is needed to determine feasibility and implications.

RIDGELINE PARK SUBDIVISION
PRELIMINARY PLAT

LOCATED IN THE NORTHWEST 1/4 OF SECTION 21, TOWNSHIP 11 NORTH, RANGE 1 EAST
OF THE SALT LAKE BASE AND MERIDIAN, COUNTY OF CACHE, STATE OF UTAH

SCALE: 1"=100'

LEGAL DESCRIPTION
PREPARED FOR
VISIONARY HOMES
RIDGELINE PARK SUBDIVISION
NIBLEY, UTAH
(May 28, 2020)
Project No. 19-384

COMPOSITE DESCRIPTION
OF
PHASES 1-3

A portion of the NE1/4, the SE1/4, and the SW1/4 of Section 21, Township 11 North, Range 1 East, Salt Lake Base & Meridian, located in Nibley, Utah, more particularly described as follows:

Beginning at the southeast corner of Lot 24, Phase 7, ELKHORN ESTATES Subdivision, according to the Official Plat thereof on file in the Office of the Cache County Recorder, and as currently monumented and constructed, located N0°22'44"W along the Section line 285.50 feet and East 2,656.35 feet from the West 1/4 Corner of Section 21, T11N, R1E, S.L.B.& M.; thence S89°50'50"E 2.67 feet; thence along the arc of a 98.00 foot radius curve to the right 153.59 feet through a central angle of 89°47'42" (chord: S44°56'59"E 138.35 feet); thence S0°03'08"E 95.63 feet; thence along the arc of a 170.00 foot radius curve to the left 165.67 feet through a central angle of 55°50'12" (chord: S27°58'14"E 159.19 feet); thence S55°53'20"E 464.03 feet; thence along the arc of a 3,050.00 foot radius curve to the right 138.09 feet through a central angle of 2°35'39" (chord: S54°35'31"E 138.08 feet); thence S53°17'41"E 376.62 feet; thence along the arc of a 170.00 foot radius curve to the left 59.82 feet through a central angle of 20°09'40" (chord: S63°22'31"E 59.51 feet); thence S16°32'39"W 181.54 feet; thence S53°17'41"E 38.67 feet; thence S20°20'37"W 148.68 feet; thence S33°00'53"W 81.54 feet; thence S43°43'47"W 73.00 feet; thence N89°04'54"W (deed: N89°03'47"W) 84.40 feet; thence S0°47'06"E (deed: S0°45'59"E) 132.50 feet; thence N89°03'07"W (deed: N89°02'W) 586.37 feet; thence N0°01'10"E (deed: N0°02'17"E) 182.00 feet; thence N89°03'07"W (deed: N89°02'W) 160.00 feet; thence S0°01'10"W (deed: S0°02'17"W) 167.00 feet; thence along the arc of a 15.25 foot radius curve to the left 23.70 feet through a central angle of 89°04'17" (chord: S44°30'59"E 21.38 feet); thence N89°03'07"W (deed: N89°02'W) 45.00 feet; thence N0°01'10"E (deed: N0°02'17"E) along a fence line and extension thereof 577.91 feet; thence S87°52'00"W along the extension of, and along a fence line 93.50 feet; thence N89°00'00"W along a fence line 219.80 feet; thence N89°16'00"W along a fence line 191.93 feet to the easterly line of ELKHORN Subdivision, Phase 1, according to the Official Plat thereof on file in the Office of the Cache County Recorder, and as currently monumented and constructed; thence N0°11'58"W (plat: N0°15'28"W) 299.47 feet to the southeast corner of Parcel B, Phase 7, ELKHORN Subdivision, according to the Official Plat thereof on file in the Office of the Cache County Recorder, and as currently monumented and constructed; thence along said Plat and said Phase 6 the following 3 (three) courses and distances: N0°11'08"W (plat: N0°14'38"W) 335.78 feet; thence S89°50'50"E (plat: S89°54'20"E) 508.23 feet; thence N0°25'17"W (plat: N0°28'47"W) 287.51 feet to the point of beginning.

Contains: 28.11+/- acres

20 21 — NORTH WEST CORNER OF SECTION 21, T11N, R1E, SLB&M, RING & LID MONUMENT

BASIS OF BEARING: N0°22'44"W

N0°22'44"W 285.50'

EAST 2656.35'

20 21 — WEST 1/4 CORNER OF SECTION 21, T11N, R1E, SLB&M, RING & LID MONUMENT

450 WEST STREET (PUBLIC - 50' WIDE)

2965 SOUTH STREET (PUBLIC - 60' WIDE)

POINT OF BEGINNING

#03-154-0023 BRANDON C & MELISSA S DUCE

#03-154-0024 JENNIFER MARIE DEWAAL

#03-025-0017 ROPELATO PROPERTIES LC

SMH #12
RIM: 4531.97
EAST: 4525.36
WEST: 4525.29

#03-154-0030 THOMAS W & TRACEY MCGUIRE

#03-154-0029 COURTNEY BOYLE

#03-154-0028 CAROL JEAN ROBBINS TRUST

#03-154-0027 MICHAEL T & RAEANN ANDERSON

#03-154-0026 ANGEL BARBERO-GARCIA

#03-154-0025 EDWARD L PEDERSEN

OPEN SPACE A 0.21 ACRES

10.00' EASEMENT IN FAVOR OF COLLEGE IRRIGATION CANAL

THIS ROAD SHALL BE PAVED WITH ALL WEATHER SURFACING AS PART OF PHASE #1 FOR EMERGENCY ACCESS.

WETLAND AREA

COLLEGE IRRIGATION CANAL

CLEAR CREEK

#03-154-0042 BRANDYN J & SHANNON L BOEHME

#03-154-0041 MARILYN M & RICHARD C HILLERY

APPROXIMATE WELL LOCATION PER UTAH DIVISION OF WATER RIGHTS MAPPER

#03-154-0043 MICHAEL D & VIRGINIA D TREMAYNE

#03-154-0044 STEVEN J & DANETTE L KRESIE

ELKHORN RANCH (PUBLIC - 60' WIDE)

3025 SOUTH (TS-14)

3085 SOUTH (TS-14)

3170 SOUTH (TS-14)

475 WEST (TS-14)

400 WEST (TS-14)

340 WEST (TS-14)

ROPELATO DRIVE (MODIFIED TS-14 #2)

MODIFIED TS-14 #1

MODIFIED TS-14 #1 (TYP.)

PRIVATE DRIVE (24-FT)

PHASE 1

PHASE 2

PHASE 3

OPEN SPACE B 0.60 ACRES

OPEN SPACE C 0.65 ACRES

OPEN SPACE D 1.65 ACRES

OPEN SPACE E 0.23 ACRES

OPEN SPACE F 0.35 ACRES

OPEN SPACE G 0.10 ACRES

TRAIL (10-FT PUBLIC ACCESS EASEMENT)

STORM DRAIN BASIN

25.00' (TYP.)

42.00' (TYP.)

49.00' (TYP.)

31.00' (TYP.)

TRAIL BY OTHERS

FIRE TRUCK TURNAROUND

POINT OF STORM WATER DISCHARGE

#03-022-0010 NIBLEY CITY

#03-025-0003 VERN & LENA BALES

#03-025-0004 BRIAN J STOUT

#03-025-0005 DAN L FRANCE

#03-025-0012 ROPELATO PROPERTIES LC

COMMERCIAL LOT #1 0.62 AC

COMMERCIAL LOT #2 0.81 AC

COMMERCIAL LOTS WILL HAVE ACCESS FROM 3170 SOUTH

INSTALL CURB & GUTTER

SMH #6
RIM: 4547.51
EAST: 4534.76 10"
WEST: 4534.61 10"

3200 SOUTH STREET (PUBLIC - 99' WIDE)

N

0 100' 200'

PROJECT CONTACTS & GENERAL NOTES:

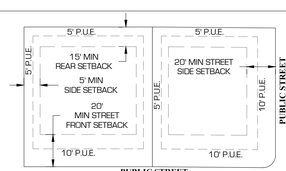
- ALL LOTS HAVE ADEQUATE BUILDABLE ENVELOPE WITH REGARDS TO HAZARDOUS SLOPE, BUILDING, WATER, ZONING SETBACKS, ETC.
- TYPE OF DEVELOPMENT: RESIDENTIAL PLANNED UNIT DEVELOPMENT (R-PUD)
- THERE ARE 24 ON-STREET PARKING STALLS.
- CURRENT ZONE: R-2
  - MIN FRONTAGE @ SETBACK (SINGLE FAMILY HOME)= 50 FT
  - FRONT SETBACK = 20 FT
  - REAR SETBACK = 15 FT
  - SIDE SETBACK = 5 FT
  - SIDE SETBACK TOWNHOME: 10 FT
  - SIDE SETBACK (ADJACENT ROW) = 20 FT
  - LOT TABULATION
    - RESIDENTIAL LOTS: 71
    - TOWNHOME LOTS: 58
- ALL OPEN SPACE AND PRIVATE DRIVE TO BE RETAINED UNDER HOA OWNERSHIP
- OPEN SPACE CALCULATIONS:
  - PHASE 1 PROVIDED: 173,985 SF (45.7%)
  - PHASE 1 REQUIRED: 133,203 SF
  - PHASE 2 PROVIDED: 140,785 SF (71.4%)
  - PHASE 2 REQUIRED: 74,026 SF
  - PHASE 3 PROVIDED: 72,568 SF (24.8%)
  - PHSAE 3 REQUIRED: 97,376 SF
  - TOTAL OPEN SPACE PROVIDED: 387,338 SF (44.5%)
  - TOTAL OPEN SPACE REQUIRED: 304,430 SF
- DENSITY DETAILS:
  - TOTAL ACREAGE = 28.30 ACRES
  - NET DEVELOPABLE = 19.97 ACRES
  - UNITS/ACRE = 6.49
- PROPERTY OWNER:
  - PARCEL: 03-025-0012
    VISIONARY HOMES 2020, LLC
    50 E 2500 N STE 101
    NORTH LOGAN, UT 84341
- DEVELOPER:
  VISIONARY HOMES
  PROJECT MANAGER: BENJAMIN STEELE
  50 E 2500 N STE 101
  NORTH LOGAN, UT 84341
- CIVIL ENGINEER:
  CIVIL SOLUTIONS GROUP, INC.
  MICHAEL TAYLOR, PE
  540 WEST GOLF COURSE ROAD SUITE B1
  PROVIDENCE, UT 84332
  P: 435.213.3762
  E: M.TAYLOR@CSG.WORK
- LAND SURVEYOR:
  CIVIL SOLUTIONS GROUP, INC.
  DENNIS CARLISLE, PLS
  669 NORTH 1890 WEST SUITE 47B
  PROVO, UT 84601
  P: 801.874.1432 EXTENSION 712
  E:DCARLISLE@CSG.WORK

STORM WATER NARRATIVE

- METHOD: TR-55 DETENTION
- RELEASE RATE: 0.05 CFS/ACRE
- PERCOLATION RATE ASSUMED TO BE GREATER THAN 0.05 CFS/ACRE. PERCOLATION TEST PENDING.
- SWALES CONTAIN 59,093 CUBIC FEET OF STORAGE. (MINUS DRIVEWAYS & ON-STREET PARKING)
- AN ADDITIONAL 18,983 CUBIC FEET OF STORAGE WILL BE PROVIDED IN THE STORM DRAIN BASIN.
- A TOTAL OF 78,076 CUBIC FEET OF STORM WATER STORAGE IS REQUIRED.
- SEE SHEET 2 FOR STORM DRAIN CALCULATIONS.

LEGEND

- PHASE LINE
- PROPERTY BOUNDARY
- BUILDING SETBACK
- EASEMENT - CONSERVATION & CANAL
- EX. SEWER LINE
- EX. WATER LINE
- PROPOSED SEWER SERVICE
- PROPOSED WATER LINE
- EXISTING EASEMENT LINE
- 5440 CONTOUR EXISTING
- EXISTING BUILDING
- PROPOSED PIT RUN SECONDARY ACCESS
- PROPOSED HYDRANT
- PROPOSED SEWER MANHOLE



PUBLIC STREET
PUE & SETBACK DETAIL
(TYPICAL SEE DRAWING FOR EXCEPTIONS)
NTS

civilsolutionsgroup inc.
540 W GOLF COURSE RD SUITE B1
PROVIDENCE, UT 84332
P: 435.213.3762
F: 435.213.3762
www.civilsolutionsgroup.net

RIDGELINE PARK SUBDIVISION
PRELIMINARY PLAT
350 WEST 3200 SOUTH
NIBLEY, UTAH 84321

MARK:	DATE:	DESCRIPTION:

PROJECT #: 19-384
DRAWN BY: A. OCHSENBEIN
REVIEWED BY: M. TAYLOR
ISSUED: 6.24.2020

PROFESSIONAL ENGINEER
06.24.20
No. 8243188-2202
MICHAEL D. TAYLOR
STATE OF UTAH

SITE PLAN

1 OF 3

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
1	8383.10	73.00 84.40 30.41 95.40 96.88	S43° 43' 46.91"W N89° 04' 54.20"W N31° 03' 28.45"W N42° 51' 54.19"E S63° 12' 43.17"E
2	6685.56	81.55 96.88 48.61 117.40	S33° 00' 52.56"W N63° 12' 43.17"W N18° 35' 46.39"E S79° 35' 44.05"E
3	8669.63	90.44 117.40 48.61 145.83	S20° 20' 37.44"W N79° 35' 44.05"W N2° 12' 45.51"E N84° 01' 15.07"E
4	11396.51	58.24 145.83 48.61 144.77 15.30 38.67	S20° 20' 37.44"W S84° 01' 15.07"W N14° 10' 15.37"W N67° 38' 14.19"E S53° 17' 41.22"E S53° 17' 41.22"E
5	8251.12	48.61 108.94 36.37 55.36 144.77	N30° 33' 16.24"W N51° 15' 13.32"E S53° 17' 41.22"E S53° 17' 41.22"E S67° 38' 14.19"W
6	6367.81	121.54 15.30 55.36 103.84 46.00	S16° 32' 39.26"W N53° 17' 41.22"W N53° 17' 41.22"W N28° 00' 12.22"E S67° 43' 34.26"E
7	5519.80	36.37 26.17 100.00 12.03 34.93 103.84	N53° 17' 41.22"W N53° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E S57° 38' 44.50"E S28° 00' 12.22"W

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
8	5000.00	50.00 100.00 50.00 100.00	N53° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W
9	5000.00	100.00 50.00 100.00 50.00	N36° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W N53° 17' 41.22"W
10	6478.54	90.00 15.71 55.00 100.00 65.00	N36° 42' 18.78"E N81° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W N53° 17' 41.22"W
11	6478.54	90.00 65.00 100.00 55.00 15.71	S36° 42' 18.78"W N53° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E S8° 17' 41.22"E
12	6000.00	60.00 100.00 60.00 100.00	N53° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W
13	6044.61	45.91 14.59 100.00 60.50 99.65	S53° 44' 04.89"E S53° 17' 41.22"E S36° 42' 18.78"W N53° 17' 41.22"W N36° 42' 18.78"E
14	6055.78	100.38 60.50 100.00 14.59 45.91	N36° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W N53° 17' 41.22"W N53° 45' 58.42"W

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
15	6000.00	60.00 100.00 60.00 100.00	N53° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W
16	6478.54	90.00 15.71 55.00 100.00 65.00	S36° 42' 18.78"W S81° 42' 18.78"W N53° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E
17	6478.54	55.00 15.71 90.00 65.00 100.00	N53° 17' 41.22"W N8° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W
18	5000.00	100.00 50.00 100.00 50.00	S36° 42' 18.78"W N53° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E
19	6400.18	43.17 6.10 100.00 50.00 26.17 108.94	N46° 01' 13.95"W N53° 17' 41.22"W N36° 42' 18.78"E S53° 17' 41.22"E S53° 17' 41.22"E S51° 15' 13.32"W
20	8714.56	142.27 136.89 15.71 64.16 31.10	S16° 14' 37.02"E N53° 17' 41.22"W N36° 42' 18.78"E N36° 42' 18.78"E S53° 17' 41.22"E
21	8381.68	60.77 136.59 10.92 0.64 48.45 136.89	S36° 38' 03.05"W N53° 17' 41.22"W N34° 45' 53.03"E N36° 36' 13.60"E N36° 42' 18.78"E S53° 17' 41.22"E

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
22	8557.71	136.59 73.83 69.74 60.00 48.94	S53° 17' 41.22"E S71° 41' 22.37"W N89° 04' 54.20"W N7° 53' 59.98"E N25° 14' 17.54"E
23	6547.22	60.00 80.17 15.78 75.89 90.00	S7° 53' 59.98"W N89° 04' 54.20"W N43° 52' 06.09"W N9° 23' 49.74"E S72° 33' 02.55"E
24	6733.90	10.92 48.94 90.00 89.79 90.00	S34° 45' 53.03"W S25° 14' 17.54"W N72° 33' 02.55"W N26° 58' 32.94"E S53° 29' 51.57"E
25	5846.18	48.45 0.64 90.00 0.96 64.16 90.00 15.71	S36° 42' 18.78"W S36° 36' 13.60"W N53° 29' 51.57"W N36° 36' 13.60"E N36° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W
26	5753.01	90.00 54.16 15.71 80.00 64.16	N53° 17' 41.22"W N36° 42' 18.78"E N81° 42' 18.78"E S53° 17' 41.22"E S36° 42' 18.78"W
85	6052.41	26.89 100.00 60.50 100.20 33.61	N55° 53' 20.10"W N34° 30' 12.36"E S55° 53' 20.10"E S34° 30' 12.36"W N55° 32' 37.57"W
86	6047.76	60.50 100.00 25.52 34.98 99.80	N55° 53' 20.10"W N34° 30' 12.36"E S55° 53' 20.10"E S55° 33' 13.44"E S34° 30' 12.36"W

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
87	6000.14	100.00 60.00 100.00 60.00	S34° 30' 12.36"W N55° 53' 20.10"W N34° 30' 12.36"E S55° 53' 20.10"E
88	6000.14	100.00 60.00 100.00 60.00	S34° 30' 12.36"W N55° 53' 20.10"W N34° 30' 12.36"E S55° 53' 20.10"E
89	6000.14	100.00 60.00 100.00 60.00	S34° 30' 12.36"W N55° 53' 20.10"W N34° 30' 12.36"E S55° 53' 20.10"E
90	6000.14	100.00 60.00 100.00 60.00	S34° 30' 12.36"W N55° 53' 20.10"W N34° 30' 12.36"E S55° 53' 20.10"E
91	6000.14	100.00 25.00 35.00 100.00 60.00	S34° 30' 12.36"W N55° 53' 20.10"W N55° 53' 20.10"W N34° 30' 12.36"E S55° 53' 20.10"E
92	6479.03	100.00 65.00 90.07 15.64 55.07	S34° 30' 12.36"W N55° 53' 20.10"W N34° 30' 12.36"E N79° 18' 26.13"E S55° 53' 20.10"E
93	6034.24	65.00 35.00 60.68 100.00 60.00	S55° 53' 20.10"E S55° 53' 20.10"E S34° 30' 12.36"W N55° 29' 47.64"W N34° 30' 12.36"E

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
94	6742.97	100.00 47.52 91.49 79.87 11.98	S55° 29' 47.64"E S34° 30' 12.36"W N82° 24' 59.25"W N21° 02' 36.56"E N34° 30' 12.36"E
95	6796.11	72.15 3.74 16.11 85.50 91.49 58.19	S75° 26' 35.47"W S66° 27' 23.85"W N67° 23' 15.77"W N6° 49' 27.32"W S82° 24' 59.25"E S5° 34' 12.90"E
96	11373.37	56.82 58.19 47.52 60.68 25.00 60.00 122.45	N88° 29' 33.56"W N5° 34' 12.90"W N34° 30' 12.36"E N34° 30' 12.36"E S55° 53' 20.10"E S55° 53' 20.10"E S34° 30' 12.36"W
97	6681.94	63.30 122.45 60.00 103.33	N73° 31' 50.59"W N34° 30' 12.36"E S55° 53' 20.10"E S34° 30' 12.36"W
98	6043.21	21.04 39.17 103.33 60.00 100.00	N55° 53' 20.10"W N60° 46' 03.53"W N34° 30' 12.36"E S55° 53' 20.10"E S34° 30' 12.36"W
99	6000.14	60.00 100.00 60.00 100.00	S55° 53' 20.10"E S34° 30' 12.36"W N55° 53' 20.10"W N34° 30' 12.36"E
100	6875.38	80.00 15.64 58.07 106.54 54.97 3.44 15.78	S34° 30' 12.36"W S79° 18' 26.13"W N55° 53' 20.10"W N34° 30' 12.36"E S49° 02' 29.70"E S55° 53' 20.10"E S10° 41' 33.87"E

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
101	10458.81	72.25 106.54 15.82 54.48 122.05 39.52	S33° 11' 43.04"E S34° 30' 12.36"W N55° 53' 20.10"W N62° 40' 28.20"W N20° 32' 23.69"E S89° 50' 50.00"E
102	9417.10	70.30 100.42 87.00 19.07 122.05	N78° 12' 58.27"W N3° 01' 39.77"E S89° 50' 50.00"E S89° 50' 50.00"E S20° 32' 23.69"W
103	7283.03	11.54 58.76 100.00 75.33 100.42	N88° 24' 35.11"W N89° 50' 50.00"W N0° 09' 10.00"E S89° 50' 50.00"E S3° 01' 39.77"W
104	7029.85	70.30 100.00 70.30 100.00	N89° 50' 50.00"W N0° 09' 10.00"E S89° 50' 50.00"E S0° 09' 10.00"W
105	8105.51	44.21 26.08 104.71 90.99 100.00	N89° 50' 50.00"W S84° 24' 16.16"W N11° 20' 37.68"W S89° 50' 50.00"E S0° 09' 10.00"W
106	14270.66	70.30 181.86 163.83 104.71	S63° 09' 52.70"W N42° 19' 36.92"W S89° 50' 50.00"E S11° 20' 37.68"E
107	16404.67	70.30 110.38 161.58 20.78 181.86	S32° 10' 53.46"W N73° 18' 36.16"W N0° 11' 08.00"W S89° 50' 50.00"E S42° 19' 36.92"E

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
108	8739.21	38.30 31.99 100.03 101.80 110.38	S8° 14' 56.14"W S0° 11' 31.57"E S89° 48' 28.43"W N0° 11' 08.00"W S73° 18' 36.16"E
109	7032.25	70.30 100.04 70.30 100.03	S0° 11' 31.57"E S89° 48' 28.43"W N0° 11' 08.00"W N89° 48' 28.43"E
110	7032.25	70.30 100.03 68.20 2.10 100.04	S0° 11' 31.57"E S89° 48' 28.43"W N0° 11' 58.00"W N0° 11' 08.00"W N89° 48' 28.43"E
111	10775.87	65.19 132.30 131.20 100.03 5.11	S14° 33' 25.76"E S61° 04' 40.06"W N0° 11' 58.00"W N89° 48' 28.43"E S0° 11' 31.57"E
112	18089.03	133.72 97.01 100.07 132.30 70.30	S30° 05' 40.82"W N89° 16' 00.00"W N0° 11' 58.00"W N61° 04' 40.06"E S44° 24' 49.56"E
113	10877.15	100.00 37.61 94.91 133.72 66.01 4.28	S1° 00' 00.00"W N89° 00' 00.00"W N89° 16' 00.00"W N30° 05' 40.82"E S74° 27' 09.59"E S89° 00' 00.00"E
114	7029.85	100.00 70.30 100.00 70.30	S1° 00' 00.00"W N89° 00' 00.00"W N1° 00' 00.00"E S89° 00' 00.00"E

PARCEL AREA TABLE

PARCEL #	AREA	SEGMENT LENGTHS	SEGMENT BEARINGS
115	7029.85	100.00 70.30 100.00 70.30	S1° 00' 00.00"W N89° 00' 00.00"W N1° 00' 00.00"E S89° 00' 00.00"E
116	7007.30	28.74 41.60 100.00 70.30 98.43	S87° 52' 00.00"W N89° 00' 00.00"W N1° 00' 00.00"E S89° 00' 00.00"E S1° 00' 00.00"W
119	7669.35	81.87 15.44 3.03 29.99 50.18 100.00 69.02	S11° 48' 19.65"E S22° 13' 37.02"W S66° 27' 23.85"W S78° 43' 41.93"W N89° 00' 00.00"W N1° 00' 00.00"E S89° 00' 00.00"E
120	6800.00	68.00 100.00 68.00 100.00	S89° 00' 00.00"E S1° 00' 00.00"W N89° 00' 00.00"W N1° 00' 00.00"E
121	6800.00	100.00 68.00 100.00 68.00	S1° 00' 00.00"W N89° 00' 00.00"W N1° 00' 00.00"E S89° 00' 00.00"E
123	7494.49	16.39 108.50 29.38 87.00 99.73	N89° 00' 00.00"W N44° 35' 45.79"W N0° 11' 31.57"W N89° 48' 28.43"E S1° 00' 00.00"W
124	6800.00	68.00 13.00 87.00 68.00 100.00	S0° 11' 31.57"E S89° 48' 28.43"W S89° 48' 28.43"W N0° 11' 31.57"W N89° 48' 28.43"E

CURVE TABLE

CURVE #	RADIUS	DELTA	ARC	CHORD
C1	170.00	32°09'15"	95.40	S42°51'54"W 94.16
C2	170.00	16°23'01"	48.61	S18°35'46"W 48.45
C3	170.00	16°23'01"	48.61	S2°12'46"W 48.45
C4	170.00	16°23'01"	48.61	S14°10'15"E 48.45
C5	170.00	16°23'01"	48.61	S30°33'16"E 48.45
C6	170.00	14°32'55"	43.17	S46°01'14"E 43.05
C7	10.00	90°00'00"	15.71	S8°17'41"E 14.14
C8	10.00	90°00'00"	15.71	S81°42'19"W 14.14
C9	230.00	8°42'07"	34.93	N57°38'45"W 34.90
C10	230.00	11°27'33"	46.00	N67°43'34"W 45.92
C11	10.00	90°00'00"	15.71	S81°42'19"W 14.14
C12	110.00	74°06'08"	142.27	N16°14'37"W 132.56
C13	110.00	31°39'12"	60.77	N36°38'03"E 60.00
C14	110.00	38°27'27"	73.83	N71°41'22"E 72.45
C15	10.00	90°25'36"	15.78	S43°52'06"E 14.19

CURVE TABLE

CURVE #	RADIUS	DELTA	ARC	CHORD
C16	270.00	16°06'15"	75.89	S9°23'50"W 75.64
C17	270.00	19°03'11"	89.79	S26°58'33"W 89.37
C18	270.00	0°12'10"	0.96	S36°36'14"W 0.96
C19	180.00	0°12'10"	0.64	S36°36'14"W 0.64
C20	180.00	3°28'31"	10.92	N34°45'53"E 10.92
C21	180.00	15°34'40"	48.94	N25°14'18"E 48.79
C22	180.00	19°05'55"	60.00	N7°54'00"E 59.72
C23	10.00	90°00'00"	15.71	N81°42'19"E 14.14
C24	2790.00	0°56'34"	45.91	S53°45'58"E 45.91
C25	2990.00	0°52'47"	45.91	N53°44'05"W 45.91
C26	10.00	90°00'00"	15.71	N8°17'41"W 14.14
C27	2990.00	0°40'13"	34.98	N55°33'13"W 34.98
C29	230.00	9°45'27"	39.17	S60°46'04"E 39.12
C30	230.00	15°46'07"	63.30	S73°31'51"E 63.10
C31	230.00	14°09'19"	56.82	S88°29'34"E 56.68

CURVE TABLE

CURVE #	RADIUS	DELTA	ARC	CHORD
C32	230.00	17°58'23"	72.15	N75°26'35"E 71.85
C33	10.00	92°18'41"	16.11	S67°23'16"E 14.42
C34	170.00	28°48'56"	85.50	S6°49'27"E 84.60
C35	170.00	26°55'12"	79.87	S21°02'37"W 79.14
C36	10.00	89°36'28"	15.64	S79°18'26"W 14.09
C42	230.00	13°41'41"	54.97	N49°02'30"W 54.84
C43	10.00	90°23'32"	15.78	N10°41'34"W 14.19
C44	10.00	89°36'28"	15.64	N79°18'26"E 14.09
C46	230.00	17°30'44"	70.30	S78°12'58"E 70.03
C47	230.00	2°52'30"	11.54	S88°24'35"E 11.54
C48	130.00	11°29'48"	26.08	N84°24'16"E 26.04
C49	130.00	30°58'59"	70.30	N63°09'53"E 69.45
C50	130.00	30°58'59"	70.30	N32°10'53"E 69.45
C51	130.00	16°52'55"	38.30	N8°14'56"E 38.17
C52	130.00	28°43'48"	65.19	N14°33'26"W 64.51

CURVE TABLE

CURVE #	RADIUS	DELTA	ARC	CHORD
C53	130.00	30°58'59"	70.30	N44°24'50"W 69.45
C54	130.00	29°05'41"	66.01	N74°27'10"W 65.31
C60	230.00	20°23'40"	81.87	N11°48'20"W 81.44
C61	10.00	88°27'34"	15.44	N22°13'37"E 13.95
C62	70.00	24°32'36"	29.99	N78°43'42"E 29.76

STORMWATER CALCULATIONS

Ridgeline Park

Description	Area (sq ft)	Area (ac)	CN (Group B/C)	(SubArea / TotalArea)*CN
Impervious Area	511,642	11.75	98	44
Open Space	396,739	9.11	61	21
Open Space	222,279	5.10	74	15
Total Area:	1,130,659	25.96	80	
Pre Development (Pasture, grassland, or range; good):	1,130,659	25.96	65	
90th-Percentile Storm Volume w/in city ROW's (0.6-in):	10,557	cu-ft		
Pre-development runoff rate (time of concentration = 432 min):	0.05	cfs/acre		
Percolation rate to be used in swales:	0.05	cfs/acre		
Initial Abstraction		0.49	inches	
for pre dev		1.08	inches	
Precipitation (10 Yr)	24 hour storm	2.04	inches	
Precipitation (25 Yr)	24 hour storm	2.41	inches	
Precipitation (100 Yr)	24 hour storm	3.02	inches	
Direct Runoff (10 Yr)	24 hour storm	0.60	total runoff depth	
for pre dev (10 Yr)	24 hour storm	0.14	total runoff depth	
Direct Runoff (25 Yr)	24 hour storm	0.84	total runoff depth	
for pre dev (25 Yr)	24 hour storm	0.26	total runoff depth	
Direct Runoff (100 Yr)	24 hour storm	1.28	total runoff depth	
for pre dev (100 Yr)	24 hour storm	0.51	total runoff depth	

Post Development			
10-Year Direct Runoff	1.30	acre-ft	56,502 ft3
25-Year Direct Runoff	1.82	acre-ft	79,374 ft3
100-Year Direct Runoff	2.78	acre-ft	120,971 ft3
Pre-Development			
10-Year Direct Runoff	0.31	acre-ft	13,658 ft3
25-Year Direct Runoff	0.57	acre-ft	24,771 ft3
100-Year Direct Runoff	1.11	acre-ft	48,322 ft3

civilsolutionsgroup inc.
540 W GOLF COURSE RD SUITE B1
PROVIDENCE, UT 84332
P: 435.213.3762
F: 435.213.3762
www.civilsolutionsgroup.net

RIDGELINE PARK SUBDIVISION
PRELIMINARY PLAT
350 WEST 3200 SOUTH
NIBLEY, UTAH 84321

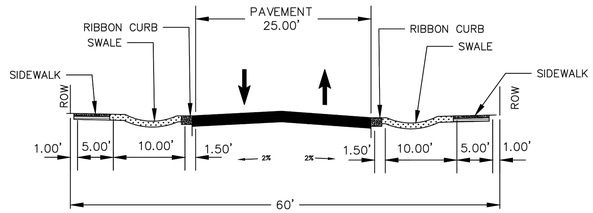
MARK	DATE	DESCRIPTION

PROJECT #: 19-384
DRAWN BY: A. OCHSENBEIN
REVIEWED BY: M. TAYLOR
ISSUED: 6.24.2020

PROFESSIONAL ENGINEER
06.24.20
No. 8243188--2202
MICHAEL E. TAYLOR
STATE OF UTAH

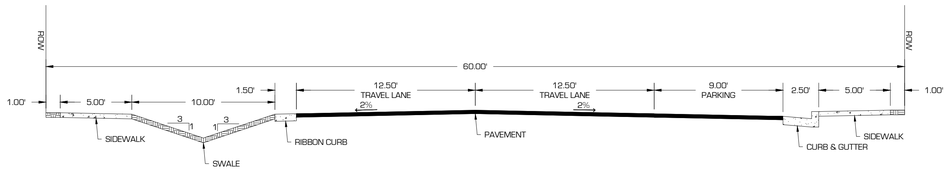
LOT DIMENSIONS

2 OF 3



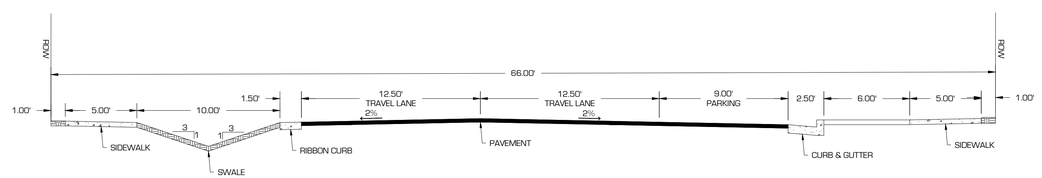
TS-14: LOCAL: 2-LANE LOCAL WITH SWALES, 60' ROW

N.T.S.



MODIFIED TS-14 #1

NOT TO SCALE



MODIFIED TS-14 #2

NOT TO SCALE

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540 W GOLF COURSE RD SUITE B1
PROVIDENCE, UT 84332
P: 435.213.3762
F: 435.213.3762
www.civilsolutionsgroup.net

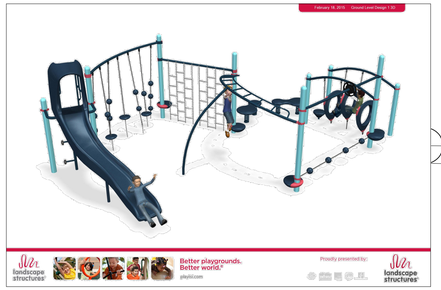
RIDGELINE PARK SUBDIVISION
PRELIMINARY PLAT
350 WEST 3200 SOUTH
NIBLEY, UTAH 84321

MARK:	DATE:	DESCRIPTION:

PROJECT #: 19-384
DRAWN BY: A. OCHSENBEIN
REVIEWED BY: M. TAYLOR
ISSUED: 6.24.2020

PROFESSIONAL ENGINEER
06.24.20
No. 8243188-2202
MICHAEL C. TAYLOR
STATE OF UTAH

ROAD SECTIONS



PLAY EQUIPMENT

SWINGS

PICNIC SHELTER

DOG STATION

Plant List: OPEN SPACES . Ridgeline Park, Nibley, Utah . Visionary Homes

KEY	PLANT TYPE	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
A	Street Trees	Acer platanoides	Norway Maple	2" cal.	
B		Acer x 'Freemani'	Autumn Blaze Maple	2" cal.	
C		Fraxinus p.l. 'Summit'	Summit Seedless Ash	2" cal.	
D		Pyrus calleryana 'Aristocrat'	Aristocrat Flowering Pear	2" cal.	
E		Tilia cordata 'Greenspire'	Little Leaf Linden	2" cal.	
F	Shade Trees	Acer t. x a.p. 'Warrenred'	Pacific Sunset Maple	2" cal.	
G		Ulmus x 'Frontier'	Frontier Elm	2" cal.	
H	Accent Trees	Malus 'Prairie Fire'	Prairie Fire Crabapple	2" cal.	
21	Roses	Rosa Knockout	Knockout Rose	1 gal.	Pink

Open Space Equipment . Ridgeline Park . Visionary Homes

Play Equipment: U-Turn play structure, including the following elements:

- 183176 Rush Slide
- 193171 Swiggle Knots
- 166809 E-pod Seats
- 158678 Climbing Wall
- 184489 Overhead Trekker
- 193173 Tight Rope
- 158997 Pod Climber
- 184605 O-zone 3-ring Climber
- 158105 Ind Wobble Pods

and Single Post Swing Frame (2 swings), both as manufactured by Landscape Structures and available from Sonntag Recreation, 801.278.9797.

Bench: Cityview model number CB1-1060 6 ft. bench with steel loop ends as manufactured and provided by Sitescapes, PO Box 22326, Lincoln, NE 68542, Toll Free: 888.331.9464

Preliminary Plant List: TOWN HOMES . Ridgeline Park, Nibley, Utah . Visionary Homes

KEY	PLANT TYPE	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
A	Street Trees	Acer platanoides	Norway Maple	2" cal.	
B		Acer x 'Freemani'	Autumn Blaze Maple	2" cal.	
C		Fraxinus p.l. 'Summit'	Summit Seedless Ash	2" cal.	
D		Pyrus calleryana 'Aristocrat'	Aristocrat Flowering Pear	2" cal.	
E		Tilia cordata 'Greenspire'	Little Leaf Linden	2" cal.	
F	Shade Trees	Acer t. x a.p. 'Warrenred'	Pacific Sunset Maple	2" cal.	
G		Ulmus x 'Frontier'	Frontier Elm	2" cal.	
H	Accent Trees	Cercis canadensis	Eastern Redbud	2" cal.	
		Crataegus phaenopyrum	Washington Thorn	2" cal.	
		Malus 'Prairie Fire'	Prairie Fire Crabapple	2" cal.	
		Malus 'Spring Snow'	Spring Snow Crabapple	2" cal.	
1	Tall Shrubs	Cotoneaster acutifolia	Peking Cotoneaster	5 gal.	
		Ribes alpinum	Alpine Currant	5 gal.	
		Spiraea vanhoutei	Bridal Wreath	5 gal.	
		Viburnum burkwoodi	Burkwood Viburnum	5 gal.	
11	Medium Shrubs	Cotoneaster apiculata	Cranberry Cotoneaster	1 gal.	
		Ligustrum v. 'Lodense'	Lodense Privet	1 gal.	
		Spiraea b. 'Anthony Waterer'	Dwarf Red Spiraea	1 gal.	
		Symphoricarpos oreophilus	Mountain Snowberry	1 gal.	
		Taxus baccata repandens	Spreading English Yew	1 gal.	
21	Roses	Rosa Knockout	Knockout Rose	1 gal.	Pink
31	Groundcovers	Gallium odorata	Sweet Woodruff	4" pots	Plant 12" o.c.
		Mahonia repens	Creeping Oregon Grape	1 gal.	Plant 24" o.c.
41	Perennial Flowers	Echinacea purpurea	Purple Coneflower	1 gal.	Plant 24" o.c.
		Hemerocallis spp.	Daylily	1 gal.	Plant 24" o.c.
		Rudbeckia hirta	Black-eyed Susan	1 gal.	Plant 24" oc.

North 1" = 40 Feet

40 20 0 40 80

4 JUNE 2020

Open Space Amenities

RIDGELINE PARK

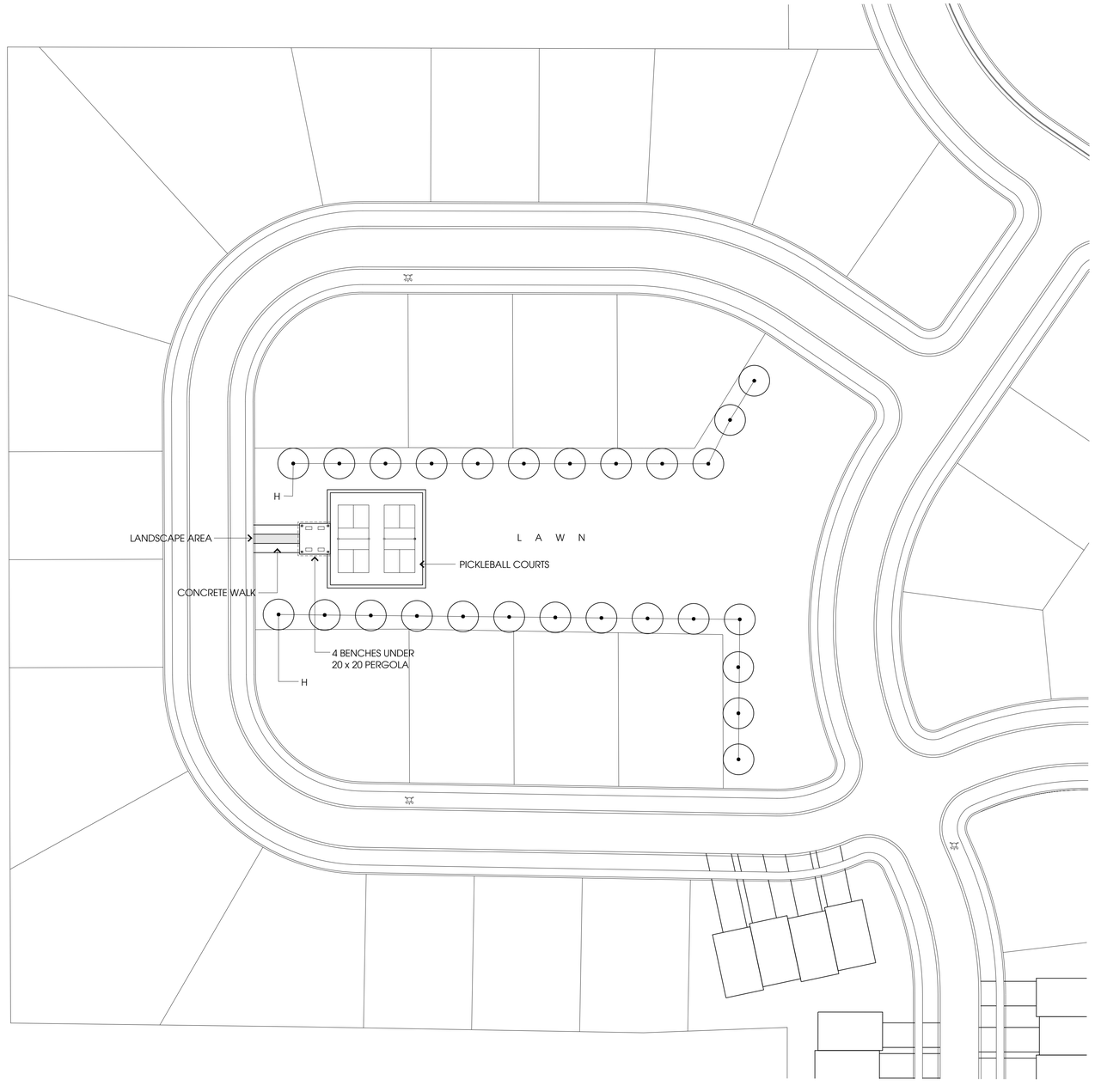
A PLANNED COMMUNITY . Nibley, Utah

Visionary Homes . 50 East 2500 North . North Logan, Utah

R. MICHAEL KELLY
CONSULTANTS
LAND PLANNING • LANDSCAPE ARCHITECTURE
P.O. Box 469, Millville, UT 84326 435.753.2955

PICKLEBALL COURT

PERGOLA



Plant List: OPEN SPACES . Ridgeline Park, Nibley, Utah . Visionary Homes

KEY	PLANT TYPE	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
A	Street Trees	Acer platanoides	Norway Maple	2" cal.	
B		Acer x 'Freemani'	Autumn Blaze Maple	2" cal.	
C		Fraxinus p.l. 'Summit'	Summit Seedless Ash	2" cal.	
D		Pyrus calleryana 'Aristocrat'	Aristocrat Flowering Pear	2" cal.	
E		Tilia cordata 'Greenspire'	Little Leaf Linden	2" cal.	
F	Shade Trees	Acer t. x a.p. 'Warrenred'	Pacific Sunset Maple	2" cal.	
G		Ulmus x 'Frontier'	Frontier Elm	2" cal.	
H	Accent Trees	Malus 'Prairie Fire'	Prairie Fire Crabapple	2" cal.	
21	Roses	Rosa Knockout	Knockout Rose	1 gal.	Pink

North 1" = 40 Feet

40 20 0 40 80

4 JUNE 2020

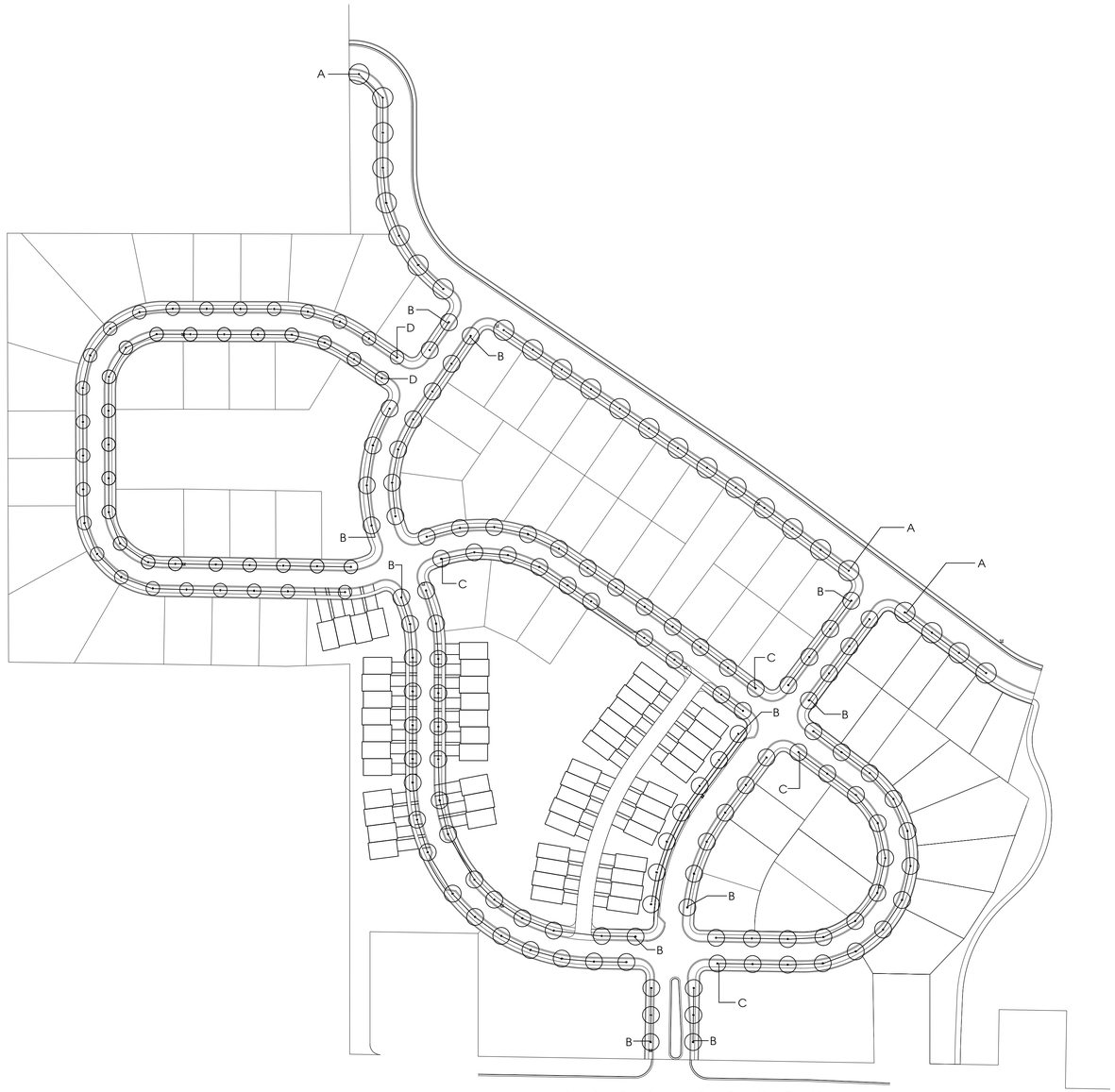
Active Adult Open Space Amenities

RIDGELINE PARK

A PLANNED COMMUNITY. Nibley, Utah

Visionary Homes . 50 East 2500 North . North Logan, Utah

R. MICHAEL KELLY
CONSULTANTS
LAND PLANNING • LANDSCAPE ARCHITECTURE
P.O. Box 469, Millville, UT 84326 435.753.2955



Plant List: STREET TREES . Ridgeline Park, Nibley, Utah . Visionary Homes

KEY	PLANT TYPE	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
A	Street Trees	Acer platanoides	Norway Maple	2" cal.	
B		Acer x 'Freemani'	Autumn Blaze Maple	2" cal.	
C		Fraxinus p.l. 'Summit'	Summit Seedless Ash	2" cal.	
D		Pyrus calleryana 'Aristocrat'	Aristocrat Flowering Pear	2" cal.	
E		Tilia cordata 'Greenspire'	Little Leaf Linden	2" cal.	

North 1" = 100 Feet

100 50 0 100 200

4 JUNE 2020

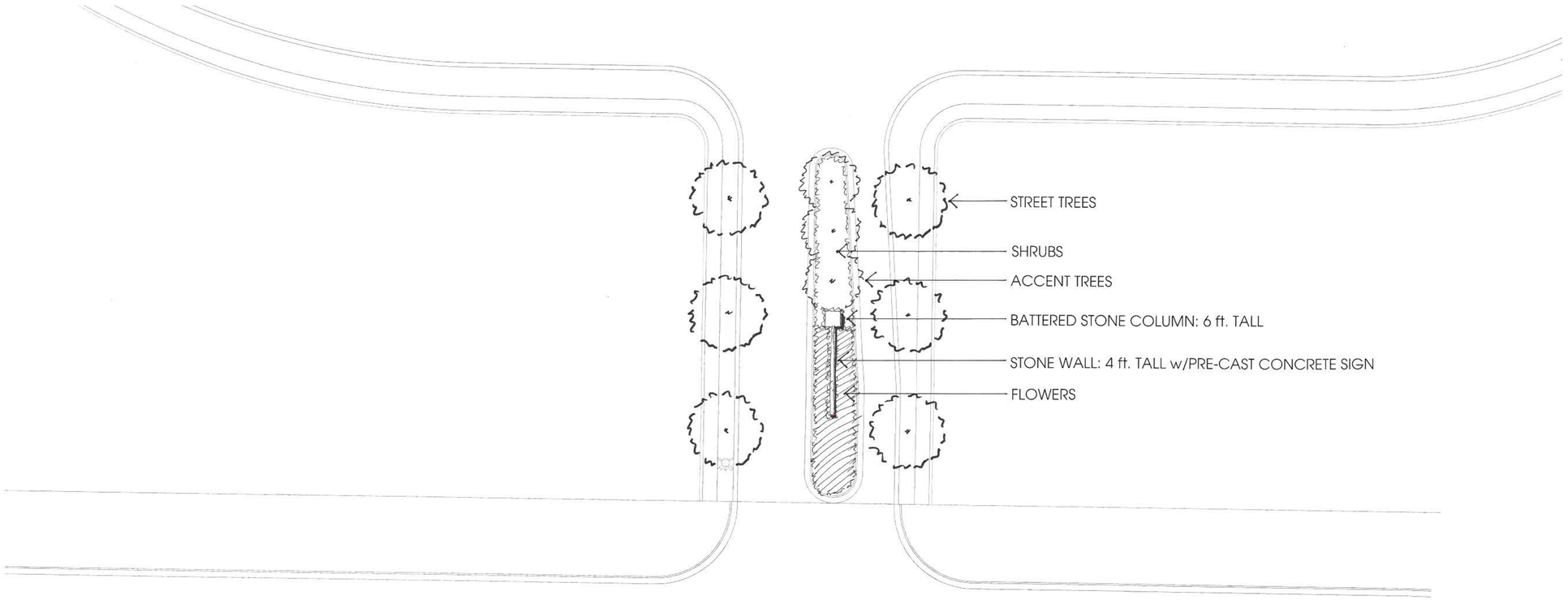
Street Tree Plan: PHASE ONE

RIDGELINE PARK

A PLANNED COMMUNITY . Nibley, Utah

Visionary Homes . 50 East 2500 North . North Logan, Utah

R. MICHAEL KELLY
CONSULTANTS
LAND PLANNING • LANDSCAPE ARCHITECTURE
P.O. Box 469, Millville, UT 84326 435.753.2955

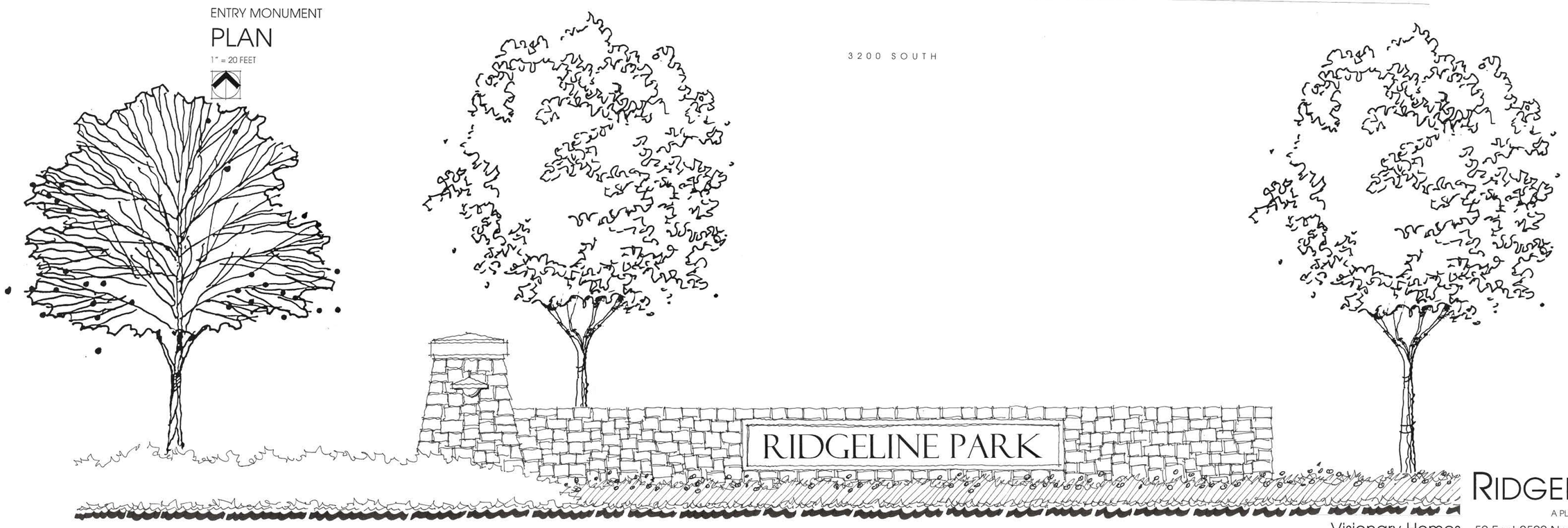


ENTRY MONUMENT

PLAN

1" = 20 FEET

3200 SOUTH



ENTRY MONUMENT

ELEVATION

½" = 1 FOOT

4 JUNE 2020

Concept Plan: ENTRY MONUMENT

RIDGELINE PARK

A PLANNED COMMUNITY . Nibley, Utah

Visionary Homes . 50 East 2500 North . North Logan, Utah

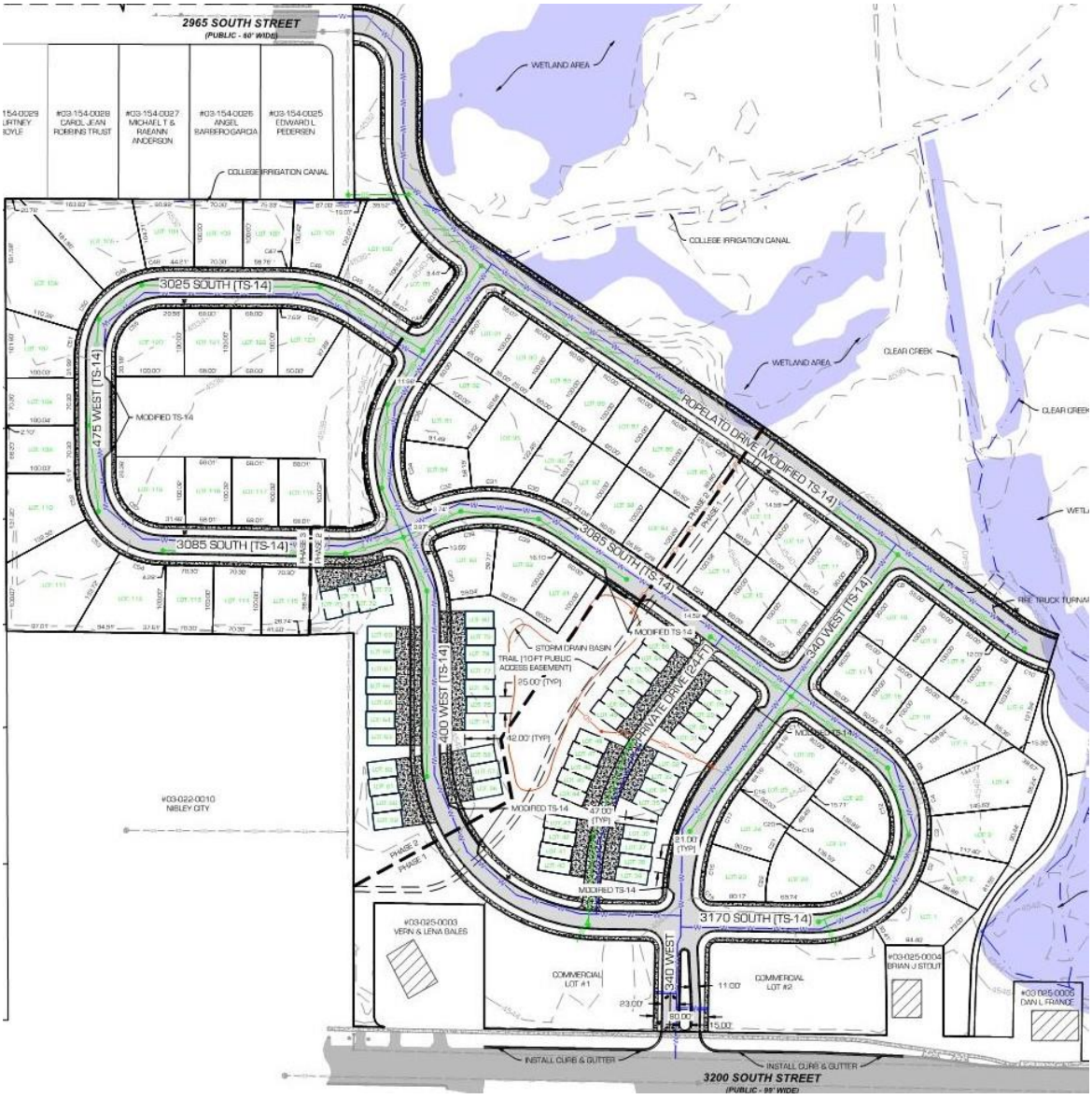
R. MICHAEL KELLY
CONSULTANTS
LAND PLANNING • LANDSCAPE ARCHITECTURE
P.O. Box 469, Millville, UT 84326 435.753.2955

PRELIMINARY MAINTENANCE PLAN

RIDGELINE PARK 1-3

LOCATED AT APPROXIMATELY
350 WEST 3200 SOUTH, NIBLEY, UT

June 4, 2020



Introduction

The following preliminary maintenance plan was prepared in accordance with § 19.32.050(B)(3) of the Nibley City Municipal Code (NCC). The purpose of this document is to 1) outline the ownership and responsibility for maintenance of the amenities, 2) show the proposed use of each amenity and how each parcel of amenities meets the standards listed in Chapter 32 of Title 19 of the NCC, 3) outline the type and size of each amenity, and 4) the proposed concept plan for landscaping the amenities. A copy of the preliminary concept landscape plan is attached as exhibit 'A' at the conclusion of this document. Where there are inconsistencies with this preliminary maintenance plan and the preliminary plat, the plat will control.

Open Space Ownership

Each parcel of open space contained within this subdivision will be common area and owned by the Ridgeline Park Homeowners Association. There is planned at present nearly 4 acres of open space in phase 1, 3 acres in phase 2 and just over 1.5 acres in phase 3. The total open space across the entirety of the preliminary plat is 35.9% which meet the requirement found within the NCC. To ensure the open space and amenity requirements will be met, we have allocated more than 35% in phases 1 and 2 so that the overall requirement is benefited by residents early on in the development. Private drives will be considered common area and will be owned and maintained by the Ridgeline Park Homeowners Association. All common area parcels inside the ROW's that will be dedicated to the city will be owned and perpetually maintained by the HOA.

Guest Parking

The Ridgeline Park Homeowners Association will also maintain those parking stalls located within the ROW where the street cross-section calls for a modified TS-14 that is not adjacent to the City Park. These stalls help to comply with the guest parking requirement of 1/3 stall per unit. There are guest parking stalls found along 340 West, 400 West and 475 West and additional stalls along 3085 South.

Maintenance Responsibility

The Common Area located within Ridgeline Park will be owned by the Ridgeline Park Homeowners Association. All maintenance will be the responsibility of this entity directly, or its assigns as directed by Board and Officers of the HOA. Presently, Visionary Homes contracts through a professional management company, Advantage Management, that specializes in helping developer/owners work through and create potential budgets, determination and allocation of HOA/unit owner responsibilities, and the continued smooth operation of the HOA organization during the construction phase. This organization will also help after the HOA is turned over completely to the residents of Ridgeline Park and their Board. They will be responsible for establishing the necessary HOA dues and collecting said dues in order to pay those hired by the HOA to maintain the property. All maintenance of the common area parcels will be done by a private maintenance company that is contracted through Advantage Management. The HOA for this subdivision is not planned to require any employees.

All long-term maintenance and improvement projects will be funded by HOA fees as well as a reinvestment fee that will be collected from each homeowner at the time of closing. The monthly HOA fee is still to be determined, and the reinvestment fee is intended to be 0.25% of the home purchase price. The fee schedule will be robust sufficiently for the HOA to have the financial ability to manage the proposed facilities without concern and to keep the common area maintained in a prompt and professional manner.

Insurance Requirements

The Ridgeline Park Homeowners Association will maintain liability insurance on the common areas that are privately owned and will be paid for out of the HOA's monthly budget from membership dues.

Amenities

Section 19.32.050 of the Nibley City Municipal Code describes the minimum open space amenities that should be provided in each development. The amount and type of amenity required under the NCC is determined by the total number of units. As Ridgeline Park proper with its dozen or so phases is approved for 498 units in total, it falls between the 401 – 500 category for minimum amenities. Thusly, 7.5 acres of park area is required with 2 pavilions, 2 swing sets, and 3 playgrounds, a clubhouse and pool and finally 2 sports court/fields. See Figure 1 on the next page for the anticipated future development amenity pattern for all phases of Ridgeline Park Subdivision.

We have planned a substantial portion of the overall minimum amenity for Ridgeline Park proper to be installed within the first 3 phases of development. The clubhouse and pool will be in future stages as well as additional playgrounds and swing set. A dog station is also planned as a requirement of the City Council in phase 1, with a future dog station and minipark planned in future phases.

Figure 1. Anticipated Future Amenity

Pavilion

A traditional roofed pavilion is planned in phase 1 as shown in Exhibit A attached. This pavilion will offer 2 picnic benches for picnics and offer respite from the elements and shade from the sun. The location of this pavilion is conveniently located along the main trail.

Pickle Ball Courts

Pickle Ball is a paddle sport created for all ages and skill levels. The rules are simple and the game is easy for beginners to learn, but can develop into a quick, fast-paced, competitive game for experienced players. It combines many elements of tennis, badminton and ping-pong. With the popularity of pickle ball on the rise, two tandem courts are planned for Ridgeline Park, see Exhibit A. These courts will be regulation size of 20' X 44' each with sufficient buffer boundaries and fence surrounding and dividing both courts. Although the location shows the pickle ball courts to front 475 West, it might be better off of 400 West to give a more central

location for all residents. Regardless, they will be located on this common area parcel with a Pergola and benches for spectators and players.

Pickle Ball Area Pergola

Adjacent to the Pickle Ball courts will be build a 20' X 20' pergola that will provide shade and respite to those preparing for pickle ball play or to spectate games. There will be 4 benches provides under the pergola or a picnic table and 3 benches.

Playground/Tot Lot & Swing Set

Located in the trail corridor is planned a playground/tot lot that is designed for the under 12 age group. The NCC requires at a minimum of 8 features which this playground will provide. Conceptual designs of the playground equipment and swing set are provided in Exhibit A together with the landscape plan. The playground equipment including the associated swing set are conveniently located along the City Center Trail and found in the heart of the first 3 phases of Ridgeline Park.

City Center Trail

A City Center Trail will be built that connects from the Nibley City's office building through Ridgeline Park to the City's Park. Many of the Amenities planned for phase 1-3 are found along this trail such as the pavilion, dog station, swing set and playground.

Dog Station

A dog station is also planned as a requirement of the City Council in phase 1, with a future dog station and minipark planned in future phases. It is located where the City Trail intersects with 3170 South. It provides a convenient and sanitary system for properly disposing of pet's waste while walking the sidewalk or the City Center Trail. These stations will help to improve the overall cleanliness of the common area and park sites.

Traffic Calming Island & Monument

A traffic island at the entrance into the Ridgeline Park at 3200 South and 340 West is anticipated to beautify the entrance and to calm traffic. A lighted monument sign is planned within the island with greenscape surrounding the sign. Although the monument sign is not fully designed, a concept is found in the following Exhibits.

Exhibit 'A'

Landscape Plan

Site Summary . Ropelatto Property . Nibley, Utah . Visionary Homes

Site			94.6 Acres	
City Park			18.3 Acres	
Public ROW per plan			9.8 Acres	
ROW dedication at 3200 South			0.5 Acres	
ROW dedication at 2900 South			0.3 Acres	
Net Developable Area			65.7 Acres	
Net Developable Area less Commercial			59.7 Acres	
Residential Units			498 Units	
SFD: 8,000 S.F.	± 4.9 Acres	19 lots		
SFD: 6,000 S.F.	± 16.1 Acres	78 lots		
SFD: 4,500 S.F.	± 3.0 Acres	22 lots		
SFD: Active Adult	± 7.5 Acres	45 lots		
Total SFD			164 Lots	32.9%
Town Homes	± 15.7 Acres	194 units		
Condominium	± 5.1 Acres	140 units		28.1%
Commercial	± 5.7 Acres			
Density			8.6 Units / Acre	
				39.0%
Open Space:			25.61 Acres	
Clubhouse Park	1.1 Acres			
Wetlands corridor	5.7 Acres			
Buffer at 3200 South	0.3 Acres			
Active Adult	1.0 Acres			
Town Homes	6.6 Acres			
Condominium	1.7 Acres			
Within ROWs	5.3 Acres			
Anticipated ROWs	5.0 Acres			

North 1" = 100 Feet

100 50 0 100 200

3 APRIL 2020

Concept Plan: ALTERNATIVE

RIDGELINE PARK

Ropelato Property . Nibley, Utah

Visionary Homes . 50 East 2500 North . North Logan, Utah

R. MICHAEL KELLY
CONSULTANTS
LAND PLANNING · LANDSCAPE ARCHITECTURE
P.O. Box 469, Millville, UT 84326 435.753.2955

civilsolutionsgroup inc.

Traffic Impact Study

Ropelato Subdivision

3200 South 250 West, Nibley, UT

Prepared For:

Dallas Nicoll, Development Manager
Visionary Homes
dnicoll@visionaryhomes.com

Prepared By:

Civil Solutions Group, Inc.
Michael E. Taylor, P.E.
540 West Golf Course Road Suite B1
Providence, Utah 84332

Original Submittal: February 4, 2020

Contents

1.0 INTRODUCTION 3
2.0 TRAFFIC COUNTS 4
3.0 TRIP GENERATION 4
4.0 TRIP DISTRIBUTION 6
5.0 INTERSECTION TRAFFIC ANALYSIS 6
6.0 ROADWAY CAPACITY THRESHOLDS & CROSS-SECTION RECOMMENDATIONS 14
7.0 TURNING LANE WARRANTS, QUEUING LENGTHS & RECOMMENDATIONS 14
8.0 SUMMARY 15
APPENDIX A: TRAFFIC COUNTS 16
APPENDIX B: INTERSECTION LOS CALCULATIONS 17

List of Figures and Tables

FIGURE 1. OVERALL PROJECT MAP 3
FIGURE 2. TRIP GENERATION ZONES 5
FIGURE 3. 2020 EXISTING LEVEL OF SERVICE 9
FIGURE 4. BACKGROUND 2021 LOS 10
FIGURE 5. 2021 BACKGROUND +PROJECT LOS 11
FIGURE 6. BACKGROUND 2026 LOS 12
FIGURE 7. 2026 BACKGROUND +PROJECT LOS 13

TABLE 1. SITE SUMMARY AND UNIT BREAKDOWN 4
TABLE 2. TRIP GENERATION FOR WEST ZONE 5
TABLE 3. TRIP GENERATION FOR EAST ZONE 5
TABLE 4. TRIP GENERATION FOR ENTIRE PROJECT 5
TABLE 5. LEVEL OF SERVICE DESCRIPTIONS 7
TABLE 6. LEVEL OF SERVICE ANALYSIS FOR ALL SCENARIOS 8

1.0 INTRODUCTION

Visionary Homes is proposing the construction of a mixed-residential development with up to 631 units to be located near 3200 South and SR-165. The project will include adult-living detached housing, single-family detached housing, townhome units, and three-story condo buildings. Two major project access points are proposed onto 3200 South at 250 West and 340 West. Minor secondary accesses are proposed at 2965 South and 2900 South. The major regional access point is anticipated to be the signal at SR-165 and 3200 South. A layout of the proposed development is provided in Figure 1. An anticipated unit breakdown is provided in Table 1. For the purposes of this study, the future 4.9-acre commercial area on the east has not been included in any calculations as its nature, use and timing are still unknown.

Visionary Homes hired Civil Solutions Group, Inc. to prepare this report to determine the traffic impacts of the development on adjacent roadways, the adequacy of the proposed roadway cross-sections and any traffic improvements necessitated by project impacts.

FIGURE 1. OVERALL PROJECT MAP

TABLE 1. SITE SUMMARY AND UNIT BREAKDOWN

Site Summary . Ropelatto Property . Nibley, Utah . Ironwood Construction

Site			94.6 Acres	
City Park			18.6 Acres	
Public ROW per plan			9.1 Acres	
Net Developable Area			66.9 Acres	
Residential Units			631 Units	
SFD: 8,000 S.F.	5.1 Acres	19 lots		
SFD: 6,000 S.F.	9.7 Acres	49 lots		
SFD: 4,000 S.F.	3.7 Acres	27 lots		
SFD: Active Adult	6.8 Acres	41 lots		
Total SFD			136 Lots	21.6%
Town Homes	22.0 Acres	313 units		
Condominium	7.6 Acres	182 units		28.8%
Commercial	4.9 Acres			
Density			9.4 Units / Acre	
				34.5%
Open Space:			23.05 Acres	
Wetlands corridor	7.0 Acres			
Buffer at 3200 South	0.64 Acres			
Acrive Adult	1.00 Acres			
Town Homes	5.7 Acres			
Condominium	1.4 Acres			
Within ROWs	5.3 Acres			
Anticipated ROWs	2.0 Acres			

2.0 TRAFFIC COUNTS

Traffic counts were collected for both AM and PM peak hour periods at both the 250 West 3200 South intersection and the SR-165 3200 South intersection. PM counts for the 250 West intersection were collected on Thursday, January 2, 2020 from 4 PM to 6 PM, while morning counts were collected on Monday, January 6, 2020 from 7 AM to 9AM. Morning and Evening counts for the intersection at SR-165 were collected on Monday, January 6, 2020 from 7 AM to 9 AM and from 4 PM to 6 PM respectively. The peak hour at both intersections was identified as the period between 5 PM and 6 PM. Traffic count tabulations have been included in Appendix A.

3.0 TRIP GENERATION

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition, 2012). Any potential internal capture reductions were not included. Values corresponding to the "weekday PM peak hour of adjacent street" scenario were utilized. The proposed project includes a mix of single-family detached housing, senior adult detached housing, and residential condos and townhouses. Accordingly, the following land-use codes were selected:

- 210: Single Family Detached Housing
- 230: Residential Condominium/Townhouse
- 251: Senior Adult Housing – Detached

Trip Generation was calculated separately for the east side and west sides of the project which each have their own separate primary access point onto 3200 South. These trip generation zones are illustrated in Figure 2.

FIGURE 2. TRIP GENERATION ZONES

Trip Generation for the West Zone is provided in Table 2. Trip Generation for the East Zone is provided in Table 3. Trip Generation for the Development as a whole is provided in Table 4.

TABLE 2. TRIP GENERATION FOR WEST ZONE

ITE Land Use Code		Independent Variable	Value	Method	Trips	In %	In	Out	IC In	IC Out	Reduction %	Driveway In	Driveway Out	Total
251 - Senior Adult Housing - Detached		Dwelling Units	40	*Average Rate	11	61	7	4	0	0	0	7	4	11
230 - Residential Condominium/Townhouse		Dwelling Units	61	Average Rate	32	67	21	11	0	0	0	21	11	32
210 - Single Family Detached Housing		Dwelling Units	50	Average Rate	50	63	32	18	0	0	0	32	18	50

TABLE 3. TRIP GENERATION FOR EAST ZONE

ITE Land Use Code		Independent Variable	Value	Method	Trips	In %	In	Out	IC In	IC Out	Reduction %	Driveway In	Driveway Out	Total
230 - Residential Condominium/Townhouse		Dwelling Units	434	Average Rate	226	67	151	75	0	0	0	151	75	226
210 - Single Family Detached Housing		Dwelling Units	45	Average Rate	45	63	28	17	0	0	0	28	17	45

TABLE 4. TRIP GENERATION FOR ENTIRE PROJECT

ITE Land Use Code		Independent Variable	Value	Method	Trips	In %	In	Out	IC In	IC Out	Reduction %	Driveway In	Driveway Out	Total
251 - Senior Adult Housing		Dwelling Units	41	*Average Rate	11	61	7	4	0	0	0	7	4	11
230 - Residential Condomir		Dwelling Units	495	Average Rate	257	67	172	85	0	0	0	172	85	257
210 - Single Family Detache		Dwelling Units	95	Average Rate	95	63	60	35	0	0	0	60	35	95

Trip generation for the development is further summarized as follows:

- East Zone:
  - In: 179 trips
  - Out: 92 trips
- West Zone:
  - In: 60 trips
  - Out: 33 trips
- Total:
  - In: 239 trips
  - Out: 124 trips

4.0 TRIP DISTRIBUTION

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provide helpful guidance to establishing these distribution percentages, especially those in close proximity to the site.

It was observed that at the 250 West 3200 South intersection the Eastbound (EB) and Westbound (WB) traffic was split almost exactly in half: 49.7% WB and 50.3% EB. Observing the relative location of regional trip attractors to the study area, it is assumed the majority of this traffic is likely coming to and from residences located within the travelshed of the 3200 South and SR-165 intersection. This means that the majority of these observed trips end up passing the SR-165 node to the east of the project rather than some other regional access point (such as 2600 South and SR-165, 3200 South and US-89/91, or 800 West and US-89/91). Accordingly, in distributing traffic for the proposed development it is estimated that approximately 80% of the trips will utilize the 3200 South SR-165 intersection as their means of regional ingress and egress. The other 20% is assumed to be coming to or from the West. In order to assess worst-case conditions at 3200 South and SR-165, no traffic has been distributed in this analysis to the minor local connections at 2965 South and 2900 South. Futhermore, given that the project does not provide significant through routes, no NB or SB through traffic has been assumed at the 250 West intersection.

5.0 INTERSECTION TRAFFIC ANALYSIS

This section of the report examines the traffic impacts of the proposed project at the study intersections, including those at 340 West and 3200 South, 250 West and 3200 South, and SR-165 and 3200 South. For purposes of this study, the project opening day is assumed to occur a year from now 2021. Five scenarios have been examined:

- 2020 Existing Conditions

- 2021 Background Traffic
- 2021 Background Traffic + Project Conditions
- 2026 Background Traffic
- 2026 Background Traffic + Project Conditions

An annual growth rate of 3% was applied to the background traffic representing the developing nature of the surrounding vicinity. Using TransModeler SE software (produced by the Caliper Corporation), which follows the Highway Capacity Manual (HCM) 2010 methodology, the PM peak hour Level of Service (LOS) was computed for each study intersection under each scenario.

LOS is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Table 5 provides a brief description of each LOS letter designation, as outlined in the 2010 Highway Capacity Manual, and lists an accompanying average delay per vehicle for both signalized and unsignalized intersections.

TABLE 5. LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description of Traffic Conditions	Average Delay (Seconds/Vehicle)
	Signalized Intersections	Overall Intersection
A	Extremely favorable progression and a very low level of control delay. Individual users are virtually unaffected by others in the traffic stream.	0 ≤ 10.0
B	Good progression and a low level of control delay. The presence of other users in the traffic stream becomes noticeable.	> 10.0 and ≤ 20.0
C	Fair progression and a moderate level of control delay. The operation of individual users becomes somewhat affected by interactions with others in the traffic stream.	> 20.0 and ≤ 35.0
D	Marginal progression with relatively high levels of control delay. Operating conditions are noticeably more constrained.	> 35.0 and ≤ 55.0
E	Poor progression with unacceptably high levels of control delay. Operating conditions are at or near capacity.	> 55.0 and ≤ 80.0
F	Unacceptable progression with forced or breakdown operating conditions	> 80.0
	Unsignalized Intersections	Worst Approach
A	Free Flow / Insignificant Delay	0 ≤ 10.0
B	Stable Operations / Minimum Delays	> 10.0 and ≤ 15.0
C	Stable Operations / Acceptable Delays	> 15.0 and ≤ 25.0
D	Approaching Unstable Flows / Tolerable Delays	> 25.0 and ≤ 35.0
E	Unstable Operations / Significant Delays Can Occur	> 35.0 and ≤ 50.0
F	Forced Flows / Unpredictable Flows / Excessive Delays Occur	> 50.0

For the purposes of this study, a minimum overall intersection performance for each of the study intersections was set at LOS D. However, if LOS E or F conditions exist, an explanation and/or mitigation measures will be presented. According to the Traffic Engineering Handbook, 5th Edition, "[f]or most design or planning purposes…service flow rates D or C are usually used because they ensure a more acceptable quality of service to facility users" (pg. 95). The LOS D threshold is also consistent with UDOT's standard for state roads in urbanized areas (see UDOT Roadway Design Manual of Instruction, May 2007 – updated August 2011, Section 7 – Page 4).

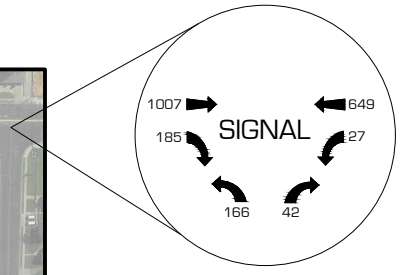
The results of this analysis are reported in Table 6 (see Appendix B for the detailed LOS reports). An optimized signal cycle of 60-seconds generated using the Webster Equation was utilized for the intersection of SR-165 and 3200 South. As shown in Table 6, all study intersections, in all scenarios continue to operate at LOS C or better.

TABLE 6. LEVEL OF SERVICE ANALYSIS FOR ALL SCENARIOS

		2020 Existing		2021 Background		2021 Back + Project		2026 Background		2026 Back + Project	
Intersection	**Control**	**Delay[1]**	**LOS**	**Delay[1]**	**LOS**	**Delay[1]**	**LOS**	**Delay[1]**	**LOS**	**Delay[1]**	**LOS**
340 W.	Minor Leg Stop Control	**0.0**	**A**	**0.0**	**A**	**12.4**	**B**	**0.0**	**A**	**13.1**	**B**
250 W.	Minor Leg Stop Control	**12.0**	**B**	**12.2**	**B**	**19.1**	**C**	**13.2**	**B**	**21.9**	**C**
SR-165	Signalized	**12.0**	**B**	**12.2**	**B**	**13.2**	**B**	**13.3**	**B**	**14.3**	**B**

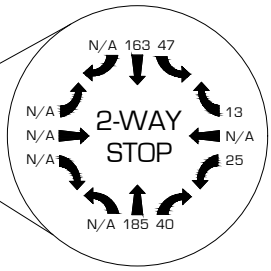
[1] Average delay as measured in seconds per vehicle. These values represent the overall intersection average for roundabout, signalized, all-way stop controlled intersections and the worst approach for all other unsignalized intersections.

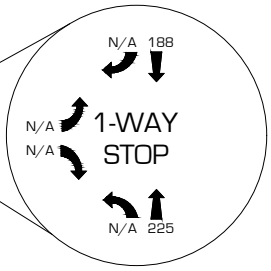
All intersections continue to operate at LOS C or better through the 2026 background plus project scenario. The same is true of all movements within the study intersections and is mapped graphically in Figures 3 through 7. The most congested movement in any scenario is the EB left turn and NB left turn movements at SR-165 in the 2026 scenario, which also continue to operate at LOS C through the study's time horizon. This analysis also suggests that the proposed traffic control methods are sufficient.



SR-165 & 3200 SOUTH

250 WEST & 3200 SOUTH





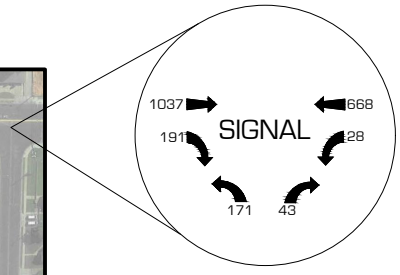
340 WEST & 3200 SOUTH

N

FIGURE 3

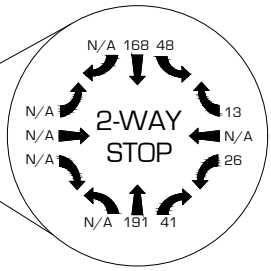
2020 BACKGROUND TRAFFIC

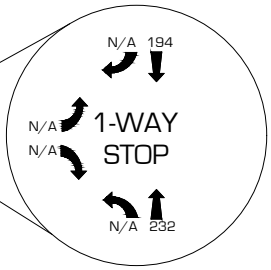
civilsolutionsgroup inc.
CACHE VALLEY | P: 435.213.3762
SALT LAKE | P: 801.216.3192
UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net



SR-165 & 3200 SOUTH

250 WEST & 3200 SOUTH





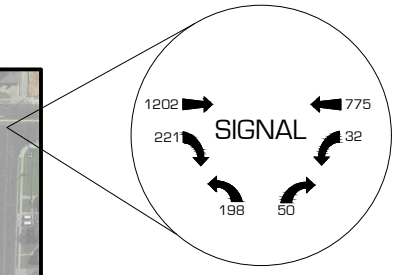
340 WEST & 3200 SOUTH

N

FIGURE 4

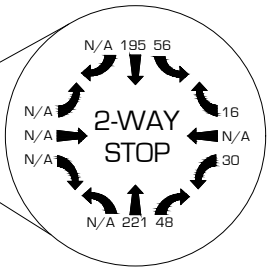
2021 BACKGROUND TRAFFIC

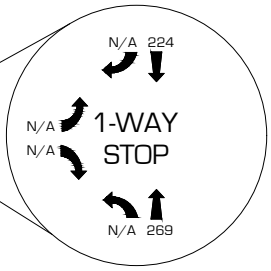
civilsolutionsgroup inc.
CACHE VALLEY | P: 435.213.3762
SALT LAKE | P: 801.216.3192
UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net



SR-165 & 3200 SOUTH

250 WEST & 3200 SOUTH





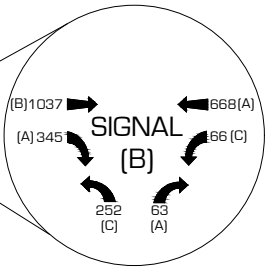
340 WEST & 3200 SOUTH

N

FIGURE 5

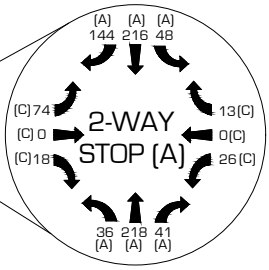
2026 BACKGROUND TRAFFIC

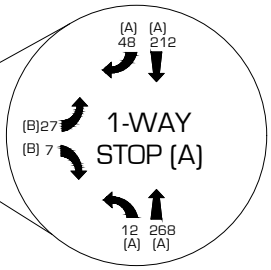
civilsolutionsgroup inc.
CACHE VALLEY | P: 435.213.3762
SALT LAKE | P: 801.216.3192
UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net



SR-165 & 3200 SOUTH

250 WEST & 3200 SOUTH





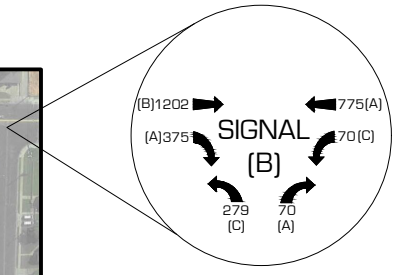
340 WEST & 3200 SOUTH

N

FIGURE 6

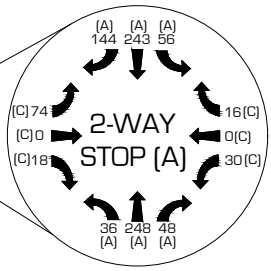
2021 TOTAL TRAFFIC & LOS

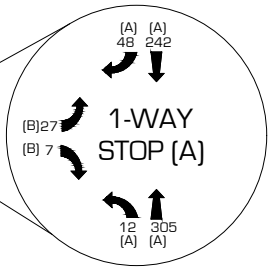
civilsolutionsgroup inc.
CACHE VALLEY | P: 435.213.3762
SALT LAKE | P: 801.216.3192
UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net



SR-165 & 3200 SOUTH

250 WEST & 3200 SOUTH





340 WEST & 3200 SOUTH

N

FIGURE 7

2026 TOTAL TRAFFIC & LOS

civilsolutionsgroup inc.
CACHE VALLEY | P: 435.213.3762
SALT LAKE | P: 801.216.3192
UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net

6.0 ROADWAY CAPACITY THRESHOLDS & CROSS-SECTION RECOMMENDATIONS

The current Nibley City Transportation Master Plan proposes that 250 West be built to typical cross-section TS-8: *Collector, 2-Lane Street, Bicycle Blvd, 66' ROW.* The same master plan designates 3200 South in its existing condition as a *3-lane Minor Arterial*. Lastly, the developer's proposal for the Ropelato Subdivision assigns 340 West to TS-13: *Local, 2-Lane Local, 60' ROW.* According to Table 1 of the City Master Plan, a 2-lane roadway can carry up to 8,000 vehicles per day and operate at a LOS C, while a 3-lane minor arterial can carry up to 11,000 vehicles per day.

Peak hour volumes typically represent 8-12% of average vehicles per day, 8% being more representative of rural areas, 12% of highly-urbanized areas. Given that Nibley City is increasingly becoming suburban, 10% has been utilized. Peak hour volumes on 340 West, 250 East and 3200 South in the 2026 background + project AADT have thus been estimated as follows:

- 340 West (Local, 2 Lanes): 930 AADT
- 250 East (Collector, 2 Lanes): 2,710 AADT
- 3200 South (Minor Arterial, 3 Lanes): 7,770 AADT

According to the standards set forth in the City Transportation Master Plan, the proposed cross-sections have sufficient roadway capacity to handle the projected vehicles per day and still provide an adequate LOS.

7.0 TURNING LANE WARRANTS, QUEUING LENGTHS & RECOMMENDATIONS

Per the request of the City Engineer this study includes an analysis of potential necessary turning lane improvements necessitated by the project. In the absence of City standard for the same, recommendations from the Utah Administrative Code will be utilized. Per UDOT's current mapping, the portion of SR-165 in the Study Area is a Category 3 roadway. Per Section R930-6-7.5.e.i.D.i & R930-6-7.5.e.i.D.ii, left-turn lanes and right-turn lanes are required to be installed at a Category 3 intersection when the following criteria are met:

(I) *"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 5 vehicles per hour****…"*

(II) *"A right turn deceleration lane and taper length is required for any access with a projected peak hour right ingress* ***turning volume greater than 10 vehicles per hour****…"*

3200 South appears to meet the same code's definition of a Category 7 roadway (R930-6-6.2.b.vii): *"Category 7 is appropriate for use on highways that have the capacity for moderate to low speeds and moderate volumes. This category provides a balance between through traffic movements and direct access. These facilities move both regional and local rural traffic but with emphasis on local movements such as those common on small city Main Streets."*

Per Section R930-6-7.5.e.i.E.i & R930-6-7.5.e.i.E.ii, left-turn lanes and right-turn lanes are required to be installed at a Category 7 intersection when the following criteria are met:

(I) A left turn lane with storage length plus taper is required for any access with a projected peak hour left ingress turning volume greater than 25 vehicles per hour…

(II) A right turn lane with storage length plus taper is required for any access with a projected peak hour right ingress turning volume greater than 50 vehicles per hour…

Based on predicted turning movement volumes and the calculated 95th-percentile queueing lengths in the 2026 Proposed Condition (see Appendix B; LOS calculations, line item "Back of Queue (Q), veh/ln)"), the following deficiencies have been identified:

- 340 West:
  - SB Left-turn bay needed, additional pavement may be required
- 250 West:
  - SB Left-turn bay needed, additional pavement may be required
  - WB right-turn bay should be added, additional pavement may be required
  - WB two-way left-turn bay should be re-striped to a dedicated left-turn bay
  - EB two-way left-turn bay should be re-striped to a dedicated left-turn bay
- SR-165:
  - No improvements needed. 95th-percentile queuing length for left-turn requires 100-ft for 4.7 vehicles; 100-ft already provided. Likewise, sufficient storage length exists for all other turning movements.

8.0 SUMMARY

The analysis contained in this study has determined that all intersections adjacent to the project together with their individual movements continue to operate at LOS C or better through the 2026 study horizon. Also, it has been determined that cross-sections proposed for project by the developer and the City Transportation Master Plan are sufficient to handle the projected daily traffic loading. Recommended improvements are limited to turning-lane additions/modifications as outlined in the Section 7.0 of this report.

APPENDIX A: TRAFFIC COUNTS

		250 WEST & 3200 SOUTH														
		EBR		EBT		WBL		WBT		NBL		NBR		15 Min	1-HR	PED
		Cars	Trucks	Cars	Trucks	Cars	Trucks	Cars	Trucks	Cars	Trucks	Cars	Trucks	Totals	TOTALS	
7:00 AM	7:15 AM	0	1	19	0	3	0	31	3	2	0	6	0	65		0
7:15 AM	7:30 AM	1	0	32	0	2	0	13	1	4	0	7	0	60		0
7:30 AM	7:45 AM	2	0	55	1	2	0	25	0	7	0	19	0	111		0
7:45 AM	8:00 AM	3	0	48	1	2	0	52	0	9	1	10	0	126	362	0
8:00 AM	8:15 AM	4	0	44	0	3	0	34	0	5	0	5	0	95	392	0
8:15 AM	8:30 AM	1	0	13	0	0	0	26	0	3	0	6	0	49	381	0
8:30 AM	8:45 AM	2	1	32	1	5	0	23	1	2	0	6	0	73	343	0
8:45 AM	9:00 AM	3	0	44	3	2	0	34	1	11	3	4	0	105	322	1
4:00 PM	4:15 PM	4	0	54	1	12	0	36	1	2	0	10	0	120		0
4:15 PM	4:30 PM	3	0	43	0	7	0	42	1	2	0	7	1	106		0
4:30 PM	4:45 PM	2	0	38	1	6	0	44	0	2	0	7	0	100		0
4:45 PM	5:00 PM	5	0	42	2	7	1	34	0	6	0	5	0	102	428	0
5:00 PM	5:15 PM	9	0	57	0	12	0	41	1	4	0	4	0	128	436	0
5:15 PM	5:30 PM	7	0	44	0	11	0	45	0	5	1	3	0	116	446	0
5:30 PM	5:45 PM	12	0	46	1	9	0	33	0	7	0	3	0	111	457	0
5:45 PM	6:00 PM	12	0	37	0	15	0	43	0	8	0	3	0	118	473	0

		SR-165 & 3200 SOUTH														
		NBL		NBT		EBR		EBL		SBR		SBT		15 Min	1-HR	PED
		Cars	Trucks	Cars	Trucks	Cars	Trucks	Cars	Trucks	Cars	Trucks	Cars	Trucks	Totals	TOTALS	
7:00 AM	7:15 AM	5	1	123	5	3	0	21	0	27	2	56	1	244		0
7:15 AM	7:30 AM	3	0	184	0	12	0	32	0	12	0	79	3	325		0
7:30 AM	7:45 AM	6	0	250	3	7	0	64	1	19	0	88	4	442		0
7:45 AM	8:00 AM	13	0	310	6	12	0	57	2	38	0	93	3	534	1545	0
8:00 AM	8:15 AM	6	1	200	7	9	0	34	0	27	0	90	2	376	1677	0
8:15 AM	8:30 AM	5	0	172	4	2	0	18	0	19	0	56	3	279	1631	0
8:30 AM	8:45 AM	3	1	146	8	5	1	26	0	28	0	95	9	322	1511	0
8:45 AM	9:00 AM	2	1	182	8	13	1	39	2	28	0	78	2	356	1333	0
4:00 PM	4:15 PM	5	1	133	1	11	0	41	0	49	0	188	6	435		0
4:15 PM	4:30 PM	9	0	141	4	13	1	42	1	30	0	209	6	456		0
4:30 PM	4:45 PM	9	0	150	4	16	1	32	0	49	1	235	7	504		0
4:45 PM	5:00 PM	3	1	158	3	9	1	39	0	41	1	209	1	466	1861	2
5:00 PM	5:15 PM	2	0	187	3	12	0	51	0	42	0	225	2	524	1950	2
5:15 PM	5:30 PM	7	0	156	2	12	0	48	0	42	0	264	1	532	2026	0
5:30 PM	5:45 PM	8	0	157	0	9	0	34	0	52	0	263	0	523	2045	0
5:45 PM	6:00 PM	10	0	144	0	9	0	33	0	49	0	251	1	497	2076	1

APPENDIX B: INTERSECTION LOS CALCULATIONS

Control: Stop or Yield

Node: 25

General | Turns | Stop/Yield Signs | LOS | HCM Adjustments

MOEs

Flow Field: Flow

Flow Interval (min.): 60

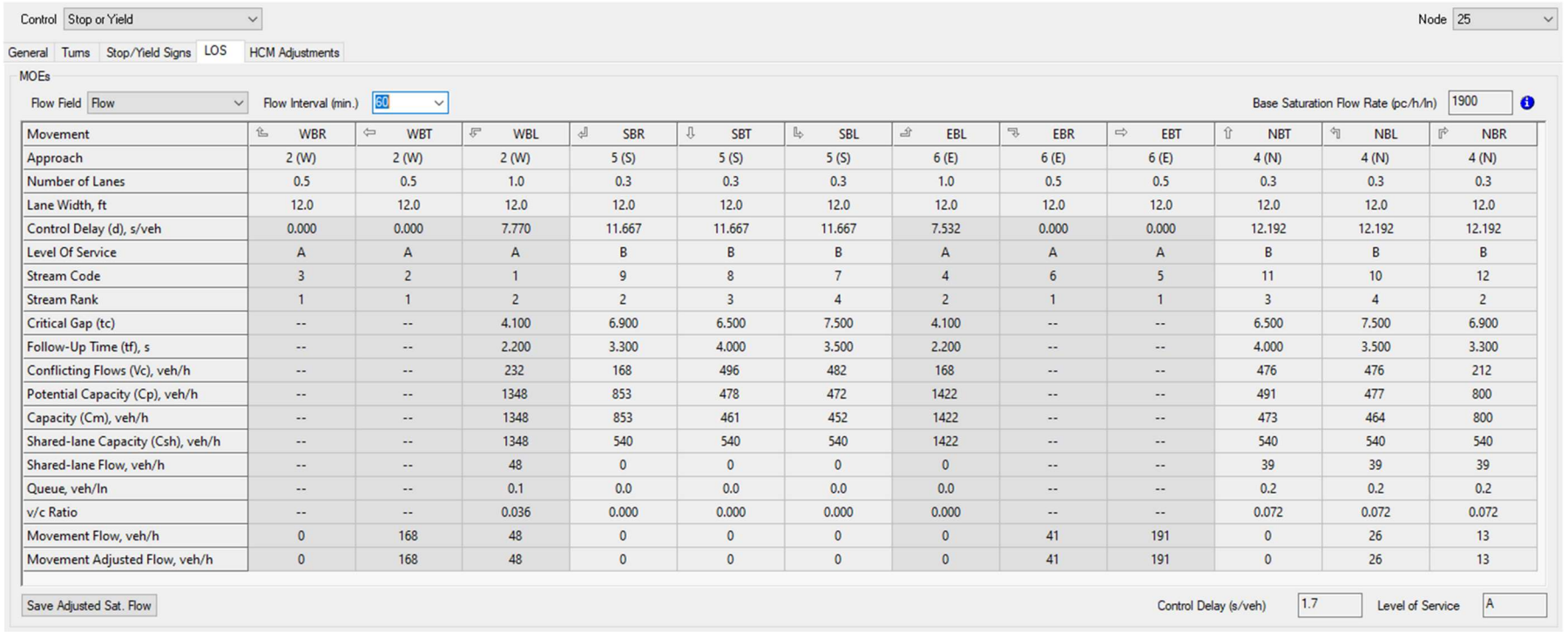
Base Saturation Flow Rate (pc/h/ln): 1900

Movement	WBR	WBT	WBL	SBR	SBT	SBL	EBL	EBR	EBT	NBT	NBL	NBR
Approach	2 (W)	2 (W)	2 (W)	5 (S)	5 (S)	5 (S)	6 (E)	6 (E)	6 (E)	4 (N)	4 (N)	4 (N)
Number of Lanes	0.5	0.5	1.0	0.3	0.3	0.3	1.0	0.5	0.5	0.3	0.3	0.3
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	0.000	0.000	7.751	11.547	11.547	11.547	7.521	0.000	0.000	11.995	11.995	11.995
Level Of Service	A	A	A	B	B	B	A	A	A	B	B	B
Stream Code	3	2	1	9	8	7	4	6	5	11	10	12
Stream Rank	1	1	2	2	3	4	2	1	1	3	4	2
Critical Gap (tc)	--	--	4.100	6.900	6.500	7.500	4.100	--	--	6.500	7.500	6.900
Follow-Up Time (tf), s	--	--	2.200	3.300	4.000	3.500	2.200	--	--	4.000	3.500	3.300
Conflicting Flows (Vc), veh/h	--	--	225	163	482	469	163	--	--	462	462	205
Potential Capacity (Cp), veh/h	--	--	1356	859	487	482	1428	--	--	500	488	808
Capacity (Cm), veh/h	--	--	1356	859	470	462	1428	--	--	482	475	808
Shared-lane Capacity (Csh), veh/h	--	--	1356	550	550	550	1428	--	--	553	553	553
Shared-lane Flow, veh/h	--	--	47	0	0	0	0	--	--	38	38	38
Queue, veh/ln	--	--	0.1	0.0	0.0	0.0	0.0	--	--	0.2	0.2	0.2
v/c Ratio	--	--	0.035	0.000	0.000	0.000	0.000	--	--	0.069	0.069	0.069
Movement Flow, veh/h	0	163	47	0	0	0	0	40	185	0	25	13
Movement Adjusted Flow, veh/h	0	163	47	0	0	0	0	40	185	0	25	13

Save Adjusted Sat. Flow

Control Delay (s/veh): 1.7

Level of Service: A



Control: Stop or Yield

Node: 25

General | Turns | Stop/Yield Signs | LOS | HCM Adjustments

MOEs

Flow Field: Flow

Flow Interval (min.): 60

Base Saturation Flow Rate (pc/h/ln): 1900

Movement	WBR	WBT	WBL	SBR	SBT	SBL	EBL	EBR	EBT	NBT	NBL	NBR
Approach	2 (W)	2 (W)	2 (W)	5 (S)	5 (S)	5 (S)	6 (E)	6 (E)	6 (E)	4 (N)	4 (N)	4 (N)
Number of Lanes	0.5	0.5	1.0	0.3	0.3	0.3	1.0	0.5	0.5	0.3	0.3	0.3
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	0.000	0.000	7.770	11.667	11.667	11.667	7.532	0.000	0.000	12.192	12.192	12.192
Level Of Service	A	A	A	B	B	B	A	A	A	B	B	B
Stream Code	3	2	1	9	8	7	4	6	5	11	10	12
Stream Rank	1	1	2	2	3	4	2	1	1	3	4	2
Critical Gap (tc)	--	--	4.100	6.900	6.500	7.500	4.100	--	--	6.500	7.500	6.900
Follow-Up Time (tf), s	--	--	2.200	3.300	4.000	3.500	2.200	--	--	4.000	3.500	3.300
Conflicting Flows (Vc), veh/h	--	--	232	168	496	482	168	--	--	476	476	212
Potential Capacity (Cp), veh/h	--	--	1348	853	478	472	1422	--	--	491	477	800
Capacity (Cm), veh/h	--	--	1348	853	461	452	1422	--	--	473	464	800
Shared-lane Capacity (Csh), veh/h	--	--	1348	540	540	540	1422	--	--	540	540	540
Shared-lane Flow, veh/h	--	--	48	0	0	0	0	--	--	39	39	39
Queue, veh/ln	--	--	0.1	0.0	0.0	0.0	0.0	--	--	0.2	0.2	0.2
v/c Ratio	--	--	0.036	0.000	0.000	0.000	0.000	--	--	0.072	0.072	0.072
Movement Flow, veh/h	0	168	48	0	0	0	0	41	191	0	26	13
Movement Adjusted Flow, veh/h	0	168	48	0	0	0	0	41	191	0	26	13

Save Adjusted Sat. Flow

Control Delay (s/veh): 1.7

Level of Service: A

Control: Stop or Yield | Node: 25

General | Turns | Stop/Yield Signs | LOS | HCM Adjustments

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Movement	WBR	WBT	WBL	SBR	SBT	SBL	EBL	EBR	EBT	NBT	NBL	NBR
Approach	2 (W)	2 (W)	2 (W)	5 (S)	5 (S)	5 (S)	6 (E)	6 (E)	6 (E)	4 (N)	4 (N)	4 (N)
Number of Lanes	0.5	0.5	1.0	0.3	0.3	0.3	1.0	0.5	0.5	0.3	0.3	0.3
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	0.000	0.000	7.836	19.121	19.121	19.121	8.067	0.000	0.000	15.540	15.540	15.540
Level Of Service	A	A	A	C	C	C	A	A	A	C	C	C
Stream Code	3	2	1	9	8	7	4	6	5	11	10	12
Stream Rank	1	1	2	2	3	4	2	1	1	3	4	2
Critical Gap (tc)	--	--	4.100	6.900	6.500	7.500	4.100	--	--	6.500	7.500	6.900
Follow-Up Time (tf), s	--	--	2.200	3.300	4.000	3.500	2.200	--	--	4.000	3.500	3.300
Conflicting Flows (Vc), veh/h	--	--	259	288	715	701	360	--	--	767	704	239
Potential Capacity (Cp), veh/h	--	--	1317	715	359	329	1210	--	--	335	328	769
Capacity (Cm), veh/h	--	--	1317	715	335	308	1210	--	--	313	304	769
Shared-lane Capacity (Csh), veh/h	--	--	1317	346	346	346	1210	--	--	380	380	380
Shared-lane Flow, veh/h	--	--	48	92	92	92	36	--	--	39	39	39
Queue, veh/ln	--	--	0.1	1.1	1.1	1.1	0.1	--	--	0.3	0.3	0.3
v/c Ratio	--	--	0.036	0.266	0.266	0.266	0.030	--	--	0.103	0.103	0.103
Movement Flow, veh/h	144	216	48	18	0	74	36	41	218	0	26	13
Movement Adjusted Flow, veh/h	144	216	48	18	0	74	36	41	218	0	26	13

Control Delay (s/veh): 3.6 | Level of Service: A

Control: Stop or Yield | Node: 25

General | Turns | Stop/Yield Signs | HCM Adjustments | LOS

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Movement	WBR	WBT	WBL	SBR	SBT	SBL	EBL	EBR	EBT	NBT	NBL	NBR
Approach	2 (W)	2 (W)	2 (W)	5 (S)	5 (S)	5 (S)	6 (E)	6 (E)	6 (E)	4 (N)	4 (N)	4 (N)
Number of Lanes	0.5	0.5	1.0	0.3	0.3	0.3	1.0	0.5	0.5	0.3	0.3	0.3
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	0.000	0.000	7.879	12.427	12.427	12.427	7.590	0.000	0.000	13.187	13.187	13.187
Level Of Service	A	A	A	B	B	B	A	A	A	B	B	B
Stream Code	3	2	1	9	8	7	4	6	5	11	10	12
Stream Rank	1	1	2	2	3	4	2	1	1	3	4	2
Critical Gap (tc)	--	--	4.100	6.900	6.500	7.500	4.100	--	--	6.500	7.500	6.900
Follow-Up Time (tf), s	--	--	2.200	3.300	4.000	3.500	2.200	--	--	4.000	3.500	3.300
Conflicting Flows (Vc), veh/h	--	--	269	195	576	560	195	--	--	552	552	245
Potential Capacity (Cp), veh/h	--	--	1306	820	431	415	1390	--	--	444	421	762
Capacity (Cm), veh/h	--	--	1306	820	412	393	1390	--	--	425	407	762
Shared-lane Capacity (Csh), veh/h	--	--	1306	485	485	485	1390	--	--	486	486	486
Shared-lane Flow, veh/h	--	--	56	0	0	0	0	--	--	46	46	46
Queue, veh/ln	--	--	0.1	0.0	0.0	0.0	0.0	--	--	0.3	0.3	0.3
v/c Ratio	--	--	0.043	0.000	0.000	0.000	0.000	--	--	0.095	0.095	0.095
Movement Flow, veh/h	0	195	56	0	0	0	0	48	221	0	30	16
Movement Adjusted Flow, veh/h	0	195	56	0	0	0	0	48	221	0	30	16

Control Delay (s/veh): 1.9 | Level of Service: A

Control: Stop or Yield

Node: 25

General | Turns | Stop/Yield Signs | LOS | HCM Adjustments

MOEs

Flow Field: Flow

Flow Interval (min.): 60

Base Saturation Flow Rate (pc/h/ln): 1900

Movement	WBR	WBT	WBL	SBR	SBT	SBL	EBL	EBR	EBT	NBT	NBL	NBR
Approach	2 (W)	2 (W)	2 (W)	5 (S)	5 (S)	5 (S)	6 (E)	6 (E)	6 (E)	4 (N)	4 (N)	4 (N)
Number of Lanes	0.5	0.5	1.0	0.3	0.3	0.3	1.0	0.5	0.5	0.3	0.3	0.3
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	0.000	0.000	7.949	21.934	21.934	21.934	8.140	0.000	0.000	17.186	17.186	17.186
Level Of Service	A	A	A	C	C	C	A	A	A	C	C	C
Stream Code	3	2	1	9	8	7	4	6	5	11	10	12
Stream Rank	1	1	2	2	3	4	2	1	1	3	4	2
Critical Gap (tc)	--	--	4.100	6.900	6.500	7.500	4.100	--	--	6.500	7.500	6.900
Follow-Up Time (tf), s	--	--	2.200	3.300	4.000	3.500	2.200	--	--	4.000	3.500	3.300
Conflicting Flows (Vc), veh/h	--	--	296	315	795	779	387	--	--	843	780	272
Potential Capacity (Cp), veh/h	--	--	1277	687	323	289	1183	--	--	303	289	732
Capacity (Cm), veh/h	--	--	1277	687	299	267	1183	--	--	281	266	732
Shared-lane Capacity (Csh), veh/h	--	--	1277	304	304	304	1183	--	--	341	341	341
Shared-lane Flow, veh/h	--	--	56	92	92	92	36	--	--	46	46	46
Queue, veh/ln	--	--	0.1	1.2	1.2	1.2	0.1	--	--	0.5	0.5	0.5
v/c Ratio	--	--	0.044	0.303	0.303	0.303	0.030	--	--	0.135	0.135	0.135
Movement Flow, veh/h	144	243	56	18	0	74	36	48	248	0	30	16
Movement Adjusted Flow, veh/h	144	243	56	18	0	74	36	48	248	0	30	16

Save Adjusted Sat. Flow

Control Delay (s/veh): 3.9

Level of Service: A

250 West & 3200 South Total Traffic – 2026

340 West & 3200 South Background Traffic – 2020

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Movement	SBR	SBL	EBL	EBT	WBR	WBT
Approach	7 (S)	7 (S)	8 (E)	8 (E)	6 (W)	6 (W)
Number of Lanes	0.5	0.5	1.0	1.0	0.5	0.5
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	10.318	10.318	7.575	0.000	0.000	0.000
Level Of Service	B	B	A	A	A	A
Stream Code	9	7	4	5	3	2
Stream Rank	2	3	2	1	1	1
Critical Gap (tc)	6.900	6.800	4.100	--	--	--
Follow-Up Time (tf), s	3.300	3.500	2.200	--	--	--
Conflicting Flows (Vc), veh/h	188	413	188	--	--	--
Potential Capacity (Cp), veh/h	828	572	1398	--	--	--
Capacity (Cm), veh/h	828	572	1398	--	--	--
Shared-lane Capacity (Csh), veh/h	677	677	1398	--	--	--
Shared-lane Flow, veh/h	0	0	0	--	--	--
Queue, veh/ln	0.0	0.0	0.0	--	--	--
v/c Ratio	0.000	0.000	0.000	--	--	--
Movement Flow, veh/h	0	0	0	225	0	188
Movement Adjusted Flow, veh/h	0	0	0	225	0	188

Control Delay (s/veh): 0 | Level of Service: A

340 West & 3200 South Background Traffic – 2021

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Movement	SBR	SBL	EBL	EBT	WBR	WBT
Approach	7 (S)	7 (S)	8 (E)	8 (E)	6 (W)	6 (W)
Number of Lanes	0.5	0.5	1.0	1.0	0.5	0.5
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	10.397	10.397	7.588	0.000	0.000	0.000
Level Of Service	B	B	A	A	A	A
Stream Code	9	7	4	5	3	2
Stream Rank	2	3	2	1	1	1
Critical Gap (tc)	6.900	6.800	4.100	--	--	--
Follow-Up Time (tf), s	3.300	3.500	2.200	--	--	--
Conflicting Flows (Vc), veh/h	194	426	194	--	--	--
Potential Capacity (Cp), veh/h	821	562	1391	--	--	--
Capacity (Cm), veh/h	821	562	1391	--	--	--
Shared-lane Capacity (Csh), veh/h	667	667	1391	--	--	--
Shared-lane Flow, veh/h	0	0	0	--	--	--
Queue, veh/ln	0.0	0.0	0.0	--	--	--
v/c Ratio	0.000	0.000	0.000	--	--	--
Movement Flow, veh/h	0	0	0	232	0	194
Movement Adjusted Flow, veh/h	0	0	0	232	0	194

Control Delay (s/veh): 0 | Level of Service: A

340 West & 3200 South Total Traffic – 2021

Control: Stop or Yield | Node: 28

General | Turns | Stop/Yield Signs | LOS | HCM Adjustments

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Movement	SBR	SBL	EBL	EBT	WBR	WBT
Approach	7 (S)	7 (S)	8 (E)	8 (E)	6 (W)	6 (W)
Number of Lanes	0.5	0.5	1.0	1.0	0.5	0.5
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	12.390	12.390	7.760	0.000	0.000	0.000
Level Of Service	B	B	A	A	A	A
Stream Code	9	7	4	5	3	2
Stream Rank	2	3	2	1	1	1
Critical Gap (tc)	6.900	6.800	4.100	--	--	--
Follow-Up Time (tf), s	3.300	3.500	2.200	--	--	--
Conflicting Flows (Vc), veh/h	236	528	260	--	--	--
Potential Capacity (Cp), veh/h	772	485	1316	--	--	--
Capacity (Cm), veh/h	772	481	1316	--	--	--
Shared-lane Capacity (Csh), veh/h	521	521	1316	--	--	--
Shared-lane Flow, veh/h	34	34	12	--	--	--
Queue, veh/ln	0.2	0.2	0.0	--	--	--
v/c Ratio	0.065	0.065	0.009	--	--	--
Movement Flow, veh/h	7	27	12	268	48	212
Movement Adjusted Flow, veh/h	7	27	12	268	48	212

Control Delay (s/veh): 0.9 | Level of Service: A

340 West & 3200 South Background Traffic – 2026

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Movement	SBR	SBL	EBL	EBT	WBR	WBT
Approach	7 (S)	7 (S)	8 (E)	8 (E)	6 (W)	6 (W)
Number of Lanes	0.5	0.5	1.0	1.0	0.5	0.5
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	10.820	10.820	7.654	0.000	0.000	0.000
Level Of Service	B	B	A	A	A	A
Stream Code	9	7	4	5	3	2
Stream Rank	2	3	2	1	1	1
Critical Gap (tc)	6.900	6.800	4.100	--	--	--
Follow-Up Time (tf), s	3.300	3.500	2.200	--	--	--
Conflicting Flows (Vc), veh/h	224	493	224	--	--	--
Potential Capacity (Cp), veh/h	786	510	1357	--	--	--
Capacity (Cm), veh/h	786	510	1357	--	--	--
Shared-lane Capacity (Csh), veh/h	619	619	1357	--	--	--
Shared-lane Flow, veh/h	0	0	0	--	--	--
Queue, veh/ln	0.0	0.0	0.0	--	--	--
v/c Ratio	0.000	0.000	0.000	--	--	--
Movement Flow, veh/h	0	0	0	269	0	224
Movement Adjusted Flow, veh/h	0	0	0	269	0	224

Control Delay (s/veh): 0 | Level of Service: A

340 West & 3200 South Total Traffic – 2026

Control: Stop or Yield | Node: 28

General | Turns | Stop/Yield Signs | LOS | HCM Adjustments

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Movement	SBR	SBL	EBL	EBT	WBR	WBT
Approach	7 (S)	7 (S)	8 (E)	8 (E)	6 (W)	6 (W)
Number of Lanes	0.5	0.5	1.0	1.0	0.5	0.5
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
Control Delay (d), s/veh	13.139	13.139	7.832	0.000	0.000	0.000
Level Of Service	B	B	A	A	A	A
Stream Code	9	7	4	5	3	2
Stream Rank	2	3	2	1	1	1
Critical Gap (tc)	6.900	6.800	4.100	--	--	--
Follow-Up Time (tf), s	3.300	3.500	2.200	--	--	--
Conflicting Flows (Vc), veh/h	266	595	290	--	--	--
Potential Capacity (Cp), veh/h	738	440	1283	--	--	--
Capacity (Cm), veh/h	738	436	1283	--	--	--
Shared-lane Capacity (Csh), veh/h	476	476	1283	--	--	--
Shared-lane Flow, veh/h	34	34	12	--	--	--
Queue, veh/ln	0.2	0.2	0.0	--	--	--
v/c Ratio	0.071	0.071	0.009	--	--	--
Movement Flow, veh/h	7	27	12	305	48	242
Movement Adjusted Flow, veh/h	7	27	12	305	48	242

Save Adjusted Sat. Flow | Control Delay (s/veh): 0.8 | Level of Service: A

SR-165 & 3200 South Background Traffic – 2020

Control: Pretimed (Sequential Phasing) | Start Time: 05:00:00 | Change... | Remove | Based on | Choose base plan... | Node: 21

General | Turns | Timing | LOS | HCM Adjustments

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Lane Group	T	R	L	R	L	T
Approach	1 (S)	1 (S)	2 (E)	2 (E)	3 (N)	3 (N)
Number of Lanes	2	1	1	1	1	2
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
QAP	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*
Adjusted Flow, veh/h	1007	185	166	42	27	649
Capacity (c), veh/h	1678	1207	377	1207	181	2058
Volume-to-Capacity Ratio (X)	0.600	0.153	0.441	0.035	0.149	0.315
Green to Cycle Ratio	0.442	0.750	0.208	0.750	0.100	0.542
Assigned Phase	1	2	3	3	2	2
Uniform Delay (d1), s/veh	12.735	2.126	20.708	1.931	24.671	7.610
Incremental Delay Calibration (K)	0.500	0.500	0.500	0.500	0.500	0.500
Incremental Delay (d2), s/veh	1.595	0.270	3.706	0.054	1.738	0.402
Initial Queue Delay (d3), s/veh	0.000	0.000	0.000	0.000	0.000	0.000
Progression Adjustment Factor (PF)	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay (d), s/veh	14.330	2.395	24.414	1.985	26.409	8.013
Level Of Service	B	A	C	A	C	A
Total Delay, veh-hr	4.008	0.123	1.126	0.023	0.198	1.444
Fully Stopped (Nf), veh/ln	9.3	0.3	2.0	0.1	0.3	4.0
Back of Queue (Q), veh/ln	9.6	0.4	2.3	0.1	0.4	4.1
Y Ratio	0.265	0.115	0.092	0.026	0.015	0.171
Effective Green Time, s	26.5	45.0	12.5	45.0	6.0	32.5
Approach Delay, s/veh	--	12.478	--	19.885	--	8.747
Flow (v), veh/h	1007	185	166	42	27	649
Saturation Flow, veh/h	3800	1900	1900	1900	1900	3800
Adjusted Saturation Flow, veh/h	3800	1609	1809	1609	1809	3800
Available Capacity (ca), veh/h	1678	161	377	335	181	380

Control Delay (s/veh): 12 | Level of Service: B

SR-165 & 3200 South Background Traffic – 2021

Control: Pretimed (Sequential Phasing) | Start Time: 05:00:00 | Change... | Remove | Based on | Choose base plan... | Node: 21

General | Turns | Timing | LOS | HCM Adjustments

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Lane Group	T	R	L	R	L	T
Approach	1 (S)	1 (S)	2 (E)	2 (E)	3 (N)	3 (N)
Number of Lanes	2	1	1	1	1	2
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
QAP	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*
Adjusted Flow, veh/h	1037	191	171	43	28	668
Capacity (c), veh/h	1678	1207	377	1207	181	2058
Volume-to-Capacity Ratio (X)	0.618	0.158	0.454	0.036	0.155	0.325
Green to Cycle Ratio	0.442	0.750	0.208	0.750	0.100	0.542
Assigned Phase	1	2	3	3	2	2
Uniform Delay (d1), s/veh	12.874	2.135	20.771	1.932	24.685	7.657
Incremental Delay Calibration (K)	0.500	0.500	0.500	0.500	0.500	0.500
Incremental Delay (d2), s/veh	1.717	0.280	3.906	0.055	1.814	0.420
Initial Queue Delay (d3), s/veh	0.000	0.000	0.000	0.000	0.000	0.000
Progression Adjustment Factor (PF)	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay (d), s/veh	14.591	2.415	24.677	1.987	26.499	8.076
Level Of Service	B	A	C	A	C	A
Total Delay, veh-hr	4.203	0.128	1.172	0.024	0.206	1.499
Fully Stopped (Nf), veh/ln	9.7	0.3	2.0	0.1	0.4	4.1
Back of Queue (Q), veh/ln	10.1	0.4	2.4	0.1	0.4	4.3
Y Ratio	0.273	0.119	0.095	0.027	0.015	0.176
Effective Green Time, s	26.5	45.0	12.5	45.0	6.0	32.5
Approach Delay, s/veh	--	12.697	--	20.118	--	8.817
Flow (v), veh/h	1037	191	171	43	28	668
Saturation Flow, veh/h	3800	1900	1900	1900	1900	3800
Adjusted Saturation Flow, veh/h	3800	1609	1809	1609	1809	3800
Available Capacity (ca), veh/h	1678	161	377	335	181	380

Save Adjusted Sat. Flow | Control Delay (s/veh): 12.2 | Level of Service: B

SR-165 & 3200 South Total Traffic – 2021

Control: Pretimed (Sequential Phasing) | Start Time: 05:00:00 | Change... | Remove | Based on | Choose base plan... | Node: 21

General | Turns | Timing | LOS | HCM Adjustments

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Lane Group	T	R	L	R	L	T
Approach	1 (S)	1 (S)	2 (E)	2 (E)	3 (N)	3 (N)
Number of Lanes	2	1	1	1	1	2
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
QAP	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*
Adjusted Flow, veh/h	1037	345	252	63	66	668
Capacity (c), veh/h	1634	1207	398	1207	181	2014
Volume-to-Capacity Ratio (X)	0.635	0.286	0.633	0.052	0.365	0.332
Green to Cycle Ratio	0.430	0.750	0.220	0.750	0.100	0.530
Assigned Phase	1	1	3	3	2	1
Uniform Delay (d1), s/veh	13.417	2.395	21.213	1.957	25.223	8.051
Incremental Delay Calibration (K)	0.500	0.500	0.500	0.500	0.500	0.500
Incremental Delay (d2), s/veh	1.892	0.596	7.472	0.082	5.607	0.443
Initial Queue Delay (d3), s/veh	0.000	0.000	0.000	0.000	0.000	0.000
Progression Adjustment Factor (PF)	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay (d), s/veh	15.308	2.991	28.685	2.040	30.830	8.494
Level Of Service	B	A	C	A	C	A
Total Delay, veh-hr	4.410	0.287	2.008	0.036	0.565	1.576
Fully Stopped (Nf), veh/ln	9.9	0.7	3.1	0.1	0.9	4.3
Back of Queue (Q), veh/ln	10.4	0.9	3.9	0.1	1.1	4.4
Y Ratio	0.273	0.214	0.139	0.039	0.036	0.176
Effective Green Time, s	25.8	45.0	13.2	45.0	6.0	31.8
Approach Delay, s/veh	--	12.234	--	23.356	--	10.502
Flow (v), veh/h	1037	345	252	63	66	668
Saturation Flow, veh/h	3800	1900	1900	1900	1900	3800
Adjusted Saturation Flow, veh/h	3800	1609	1809	1609	1809	3800
Available Capacity (ca), veh/h	1634	692	398	354	181	1634

Save Adjusted Sat. Flow | Control Delay (s/veh): 13.2 | Level of Service: B

SR-165 & 3200 South Background Traffic – 2026

Control: Pretimed (Sequential Phasing) | Start Time: 05:00:00 | Change... | Remove | Based on | Choose base plan... | Node: 21

General | Turns | Timing | LOS | HCM Adjustments

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Lane Group	T	R	L	R	L	T
Approach	1 (S)	1 (S)	2 (E)	2 (E)	3 (N)	3 (N)
Number of Lanes	2	1	1	1	1	2
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
QAP	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*
Adjusted Flow, veh/h	1202	221	198	50	32	775
Capacity (c), veh/h	1678	1207	377	1207	181	2058
Volume-to-Capacity Ratio (X)	0.716	0.183	0.525	0.041	0.177	0.377
Green to Cycle Ratio	0.442	0.750	0.208	0.750	0.100	0.542
Assigned Phase	1	2	3	3	2	2
Uniform Delay (d1), s/veh	13.691	2.181	21.119	1.941	24.740	7.928
Incremental Delay Calibration (K)	0.500	0.500	0.500	0.500	0.500	0.500
Incremental Delay (d2), s/veh	2.651	0.334	5.164	0.064	2.127	0.527
Initial Queue Delay (d3), s/veh	0.000	0.000	0.000	0.000	0.000	0.000
Progression Adjustment Factor (PF)	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay (d), s/veh	16.343	2.515	26.283	2.006	26.867	8.455
Level Of Service	B	A	C	A	C	A
Total Delay, veh-hr	5.457	0.154	1.446	0.028	0.239	1.820
Fully Stopped (Nf), veh/ln	11.9	0.4	2.4	0.1	0.4	5.0
Back of Queue (Q), veh/ln	12.5	0.5	2.9	0.1	0.5	5.1
Y Ratio	0.316	0.137	0.109	0.031	0.018	0.204
Effective Green Time, s	26.5	45.0	12.5	45.0	6.0	32.5
Approach Delay, s/veh	--	14.195	--	21.388	--	9.185
Flow (v), veh/h	1202	221	198	50	32	775
Saturation Flow, veh/h	3800	1900	1900	1900	1900	3800
Adjusted Saturation Flow, veh/h	3800	1609	1809	1609	1809	3800
Available Capacity (ca), veh/h	1678	161	377	335	181	380

Control Delay (s/veh): 13.3 | Level of Service: B

SR-165 & 3200 South Total Traffic – 2026

Control: Pretimed (Sequential Phasing) | Start Time: 05:00:00 | Change... | Remove | Based on | Choose base plan... | Node: 21

General | Turns | Timing | HCM Adjustments | LOS

MOEs

Flow Field: Flow | Flow Interval (min.): 60 | Base Saturation Flow Rate (pc/h/ln): 1900

Lane Group	T	R	L	R	L	T
Approach	1 (S)	1 (S)	2 (E)	2 (E)	3 (N)	3 (N)
Number of Lanes	2	1	1	1	1	2
Lane Width, ft	12.0	12.0	12.0	12.0	12.0	12.0
QAP	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*	*QAP*
Adjusted Flow, veh/h	1202	375	279	70	70	775
Capacity (c), veh/h	1659	1207	386	1207	181	2039
Volume-to-Capacity Ratio (X)	0.724	0.311	0.723	0.058	0.387	0.380
Green to Cycle Ratio	0.437	0.750	0.213	0.750	0.100	0.537
Assigned Phase	1	1	3	3	2	1
Uniform Delay (d1), s/veh	13.937	2.454	21.957	1.966	25.281	8.101
Incremental Delay Calibration (K)	0.500	0.500	0.500	0.500	0.500	0.500
Incremental Delay (d2), s/veh	2.788	0.671	11.175	0.092	6.146	0.540
Initial Queue Delay (d3), s/veh	0.000	0.000	0.000	0.000	0.000	0.000
Progression Adjustment Factor (PF)	1.000	1.000	1.000	1.000	1.000	1.000
Control Delay (d), s/veh	16.726	3.124	33.133	2.058	31.427	8.641
Level Of Service	B	A	C	A	C	A
Total Delay, veh-hr	5.584	0.325	2.568	0.040	0.611	1.860
Fully Stopped (Nf), veh/ln	12.0	0.8	3.5	0.1	0.9	5.0
Back of Queue (Q), veh/ln	12.7	1.0	4.7	0.2	1.2	5.2
Y Ratio	0.316	0.233	0.154	0.043	0.039	0.204
Effective Green Time, s	26.2	45.0	12.8	45.0	6.0	32.2
Approach Delay, s/veh	--	13.491	--	26.900	--	10.529
Flow (v), veh/h	1202	375	279	70	70	775
Saturation Flow, veh/h	3800	1900	1900	1900	1900	3800
Adjusted Saturation Flow, veh/h	3800	1609	1809	1609	1809	3800
Available Capacity (ca), veh/h	1659	703	386	343	181	1659

Control Delay (s/veh): 14.3 | Level of Service: B

civilsolutionsgroup inc.

GEOTECHNICAL ENGINEERING INVESTIGATION

Ropelato Subdivision Geotechnical Investigation

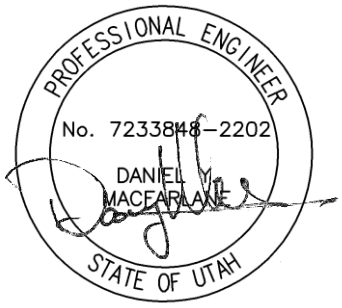
Prepared For:

Visionary Homes
Attn: Dallas Nicoll
50 E 2500 N
North Logan, UT 84341

Prepared By:

Civil Solutions Group, Inc.
Danny Macfarlane, P.E.
John Powell, Field Engineer
540 West Golf Course Rd, Suite B1
Providence, Utah 84332

Original Submittal: February 5, 2020
Job Number: 19-384



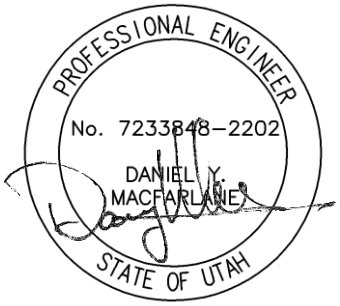
RE: Ropelato Subdivision Geotechnical Investigation

Dear Mr. Nicolls,

Per your request this geotechnical engineering investigation is submitted for the subject property located approximately at 3200 S 250 W in Nibley, UT. This report contains the findings of the field investigation and the analysis conducted by Civil Solutions Group. This report also contains recommendations pertaining to construction and design of earth related portions of this project.

Civil Solutions Group completed the field investigation on January 3, 2020 and January 8-9, 2020 at which time one bore hole and fifteen test pits were drilled/excavated, examined, and recorded in detail. The bore and excavation locations were selected based upon the proposed location of the building footprint and other site features. Civil Solutions Group recommends the site is suitable for proposed construction within the parameters defined within this report. Thank you for the opportunity to provide these services to you.

Sincerely,



Danny Macfarlane, P.E.
Civil Solutions Group, Inc.

Table of Contents

Executive Summary 1
Introduction 2
General 2
Objectives and Scope 2
Authorization 2
Professional Statements 2
Proposed Construction 2
Existing Site Conditions 3
General 3
Site Soils 3
Subsurface Exploration and Testing Programs 3
General 3
Field Program 4
Laboratory Program 4
Sieve Analysis 4
Atterberg Limits 5
Chemical 5
Discussions & Recommendations 5
Summary of Findings 5
Earthwork 5
Site Preparation 5
Temporary Excavations 6
Structural Fill 6
Fill Placement and Compaction 7
Utility Trenches 8
Drainage 8
Infiltration 9
Structural Considerations 9
Spread and Continuous Wall Foundations 9
Lateral Resistance 9
Floor slabs 10
Pavements 10
Pavement Maintenance 11

Soil Corrosiveness....11
Cement Use....11
Construction Considerations....12
Geoseismic Setting....12
Faulting....12
Soil Class....12
Liquefaction....12
Estimated Historic High Water Table....12
Groundwater....13
Closure....14
Glossary/Explanation of Terms or Procedures....15
Appendix....17

Table of Figures

Figure 1 - Vicinity Map....17
Figure 2 - Site Map....18
Figure 3 - Looking North....19
Figure 4 – Looking South....19
Figure 5 – Key to Soil Logs....20

Table of Tables

Table 1 - Gradation & Soil Classifications....4
Table 2 - Atterberg Limits....5
Table 3 - Chemical Properties of Soil....5
Table 4 – Structural Fill Gradation Requirements....7
Table 5 - Fill Compaction Requirements....8
Table 6 - Structural Design Parameters....9
Table 7 - Pavement Recommendations....10
Table 8 - Estimated Historic High Water Table....13
Table 9 - Groundwater Depth....13

Executive Summary

A geotechnical study was performed for the subject property at 3200 S 250 W in Nibley, UT. Our scope of services included drilling one bore hole designated B-1, and excavating fifteen test pits designated TP-1 to TP-15. The boreholes were drilled with hollow stem augers, or excavated with a backhoe, and advanced to a maximum depth of 16-feet below existing site grade. All field work was contained in the proposed development area and was completed on January 3, 2020 and January 8-9, 2020.

The findings and recommendations generated from this exploration are summarized below:

- Onsite Soil – The site is composed mostly of silty sand in gravels and cobbles, and silty clay. Thick layers of gravels/cobbles were encountered throughout most of the site. Groundwater was encountered between 4.0 and 9.0-feet below existing grade.
- Foundations - The planned structure should be supported entirely on continuous spread footings or spot footings. The recommended bearing capacity of in-situ soil is 1,500 pounds per square foot.
- Seismic Considerations - The 2018 International Building Code Seismic Design Category for this site is Category D (Risk Category II), with a soil site class of D. The site is located in an area with high to moderate liquefaction potential according to the Utah Geological Survey. Sandy soils and groundwater were encountered during the field investigation. A full liquefaction analysis was not performed for this site.
- Pavement - Minimum pavement sections are as follows:

Section	Recommended Pavement Sections (Inches)				
	Asphalt Concrete	Portland Cement Concrete	Untreated Base Course	Granular Borrow	Total
Local Street	3.0	-	6.0	6.0	15.0
Collector Street	3.0	-	6.0	10.0	19.0
Parking Area	3.0	-	8.0	-	11.0
Private Road	3.0	-	8.0	-	11.0
	-	5.0	6.0	-	11.0
Dumpster Pads	-	6.0	6.0	-	12.0

This summary should be used in conjunction with the entire report for design purposes. It should be recognized that details were not included or fully developed in this section, and the report must be read in its entirety for a comprehensive understanding of the items contained herein. The entire report should be read for an understanding of the report limitations.

Introduction

General

Civil Solutions Group, Inc. (CSG) was contacted by Mr. Nicolls and was asked to conduct a geotechnical engineering investigation on the subject property located at 3200 S 250 W in Nibley, UT. The general location of the site may be seen in Figure 1, Vicinity Map. A more detailed location of the site showing the proposed development and surrounding improvements is shown in Figure 2, Site Map. It was described that the proposed construction for the Ropelato Subdivision is anticipated to be one to two stories in height and of wood frame construction.

Objectives and Scope

The objectives and scope of our study were defined between Mr. Nicolls and Mr. Michael Taylor of Civil Solutions Group. In general, the objectives of this study were to:

- Define and evaluate subsurface soil and groundwater conditions across the site
- Provide foundation, earthwork, drainage, and geo-seismic recommendations

To accomplish these objectives, our scope has included the following:

- A field program consisting of the drilling/excavating, logging, and sampling of the boring and test pits
- A laboratory testing program
- An office program consisting of correlating available data, engineering analyses, and report preparation

Authorization

Civil Solutions Group, Inc. (CSG) was authorized to proceed with this scope of work through an executed contract returned to our office by Mr. Nicolls of Visionary Homes. The executed contract was dated November 27, 2019.

Professional Statements

We at CSG certify that our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time. Supporting data upon which our recommendations are based is presented in the subsequent sections of this report. Recommendation made herein are governed by the physical properties of the soils encountered in the exploration borings, observed and projected groundwater conditions, and the layout and design data as summarized in the Proposed Construction section of this report. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, CSG must be informed so that our recommendations can be reviewed and amended, if necessary.

Proposed Construction

The proposed construction is as follows: a mixture of singly family and multi-family residential and roadways. It is anticipated that the structures will be one to two stories of height of typical wood frame construction. If structural engineering plans are different than assumed, they should be provided to our office for review.

The site development will likely require moderate earthwork. It is estimated that in certain areas 5 to 6-foot cuts and/or fills will be required to achieve site grades and tie in-to the adjacent properties.

Traffic is assumed to consist of automobiles and occasionally medium to heavy weight trucks.

Column and wall loadings are anticipated to be on the order of 10-24 kips and 1-2.25 kips per lineal foot respectively.

Existing Site Conditions

General

The site lies approximately at 3200 S 250 W in Nibley, UT. The existing property contains several old barns and storage sheds for livestock feed. The site is divided by fences and waterways. The properties to the west are used for residential, while the north properties and some along the east are used for agriculture. More residential homes are along the east side of the site. Several areas within the site are currently (or very recently) have been used for agricultural farming. The majority of the site is relatively flat, with a few spots within the property, and along the south, that slope steeply before leveling off again. On-site there were streams, canals, and standing water observed at the time of the site visit. There are large areas of wetland located throughout the site.

Site Soils

The soil conditions encountered in each of the test pits and the boring, to the depths explored, had two general soil profiles. In bore hole number 1 (B-1), there was approximately 1.5-feet of topsoil with roots extending from vegetation. From approximately 1.5-feet beneath existing grade to 7-feet we encountered brown gravels and small cobbles with silty sand. From 7-feet to 12-feet, we encountered a course sandy gravel with some cobbles. From 12-feet to 15-feet course to medium grain sand was encountered. From 15-feet to the full depth explored, 16-feet, silty sand was encountered. In test pit number 11 (TP-11), there was approximately 1.5-feet of topsoil with roots extending from vegetation. From 1.5-feet to 10-feet silty clay was encountered. From 10-feet to the full depth explored, 11.5-feet, silty sand in gravels and cobbles was encountered. TP-12 had similar characteristics as TP-11, and the remaining test pits throughout the site had similar characteristics as B-1. Groundwater was encountered between 4.0 and 9.0-feet. Soil encountered during the investigation can be referenced in the Soil Logs in the Appendix of this report. Materials encountered in the bore holes will exhibit required strength and compressibility characteristics under the anticipated loading range.

Subsurface Exploration and Testing Programs

General

To define and evaluate the subsurface soil and groundwater conditions across the site, one boring and fifteen test pits were drilled or excavated to depths of up to 16-feet below existing grade. The test pits were excavated with a back hoe, while the boring was drilled using a truck mounted drilling rig equipped with 3.25-inch inside diameter hollow stem augers. Soil sampling equipment was advanced through the hollow stem to retrieve disturbed samples of the in-situ soil. Locations of the boring and test pits are presented in Figure 2.

Field Program

The field portion of our study was conducted on January 3, 2020 and January 8-9, 2020. Continuous logs of the subsurface findings were created and maintained as part of the field program. The field portion of our study was under the direct control and continual supervision of an experienced member of our geotechnical staff. Field classifications were logged, and any adjustments made once the laboratory data and analyses were received.

The CSG geotechnical team collected both disturbed samples of typical soils that were found in the bore holes. The disturbed samples were taken using bagged grab samples and a SPT split spoon sampler. The SPT split spoon sampler had an outside diameter of 2-inches and an inside diameter of 1.38-inches. The sampler was driven into the undisturbed soil a total of 18-inches utilizing a 140-pound auto hammer falling a vertical distance of 30-inches. The blow counts recorded on the Soil Logs represent the total number of blows from the safety hammer that were required to drive the sampler a vertical distance of 6-inches.

Graphical depictions of the subsurface findings are shown in the Soil Logs contained within the Appendix of this report.

Laboratory Program

CSG partnered with RB&G Engineering to conduct a laboratory testing program on the samples retrieved from the sites. This laboratory testing program was conducted to provide data necessary for our engineering analyses. The program included partial gradation (sieve) analysis, Atterberg limits (if applicable), and chemical tests. The following describes the tests and summarize the test data. Samples from the field will be maintained in our office for a period of 90 days at which time they will be disposed of unless a written request is received from Visionary Homes that they should be retained.

Sieve Analysis

Gradation tests (sieve analysis) were conducted on disturbed samples which were collected from the site. The gradation test aids in classifying the soils and can provide general index parameters. Gradation tests aid the design team in determining the overall composition of the soil and behaviors that the soil may exhibit under certain situations. The results of the tests are shown in Table 1 below:

Table 1 - Gradation & Soil Classifications

Boring/Excavation Number	Depth (feet)	Percent Passing #200 Sieve	Soil Classification
B-1	9-11	7	SP-SM
TP-4	7-7.5	65	ML
TP-8	9-9.5	96	MH
TP-11	4-4.5	83	CL
TP-12	6-7	98	CL

Atterberg Limits

Atterberg Limits were performed on relatively undisturbed samples to understand the plastic and liquid limits of the cohesive soil. Atterberg limits allow the design team to understand the potential for the soil to shrink and expand based on water content. The results are presented in Table 2 below:

Table 2 - Atterberg Limits

Boring Sample No.	Depth (feet)	Classification	Liquid Limit (LL)	Plastic Limit (PL)	Plasticity Index (PI)
B-1	9-11	SP-SM	--	--	NP
TP-4	7-7.5	ML	--	--	NP
TP-8	9-9.5	MH	67	33	34
TP-11	4-4.5	CL	30	20	10
TP-12	6-7	CL	37	23	14

Chemical

To determine if the site soils will react detrimentally with concrete, chemical Sulfate tests were performed on a representative sample of the natural soils at approximately the depth of the soil that will come into direct contact with concrete improvements for the proposed development. The results of the chemical tests are shown in Table 3 below:

Table 3 - Chemical Properties of Soil

Boring Sample No.	Depth (feet)	Sulfate (mg/kg)
TP-8	2.5-3	15.3
TP-12	3-4	<6.05

Discussions & Recommendations

Summary of Findings

It is recommended that the owner have a CSG field engineer or a qualified assistant oversee the site work, especially the footing excavation and preparation. Also, the building code requires inspection and reports on all structural site work.

Detailed discussions pertaining to earthwork, structural considerations, geoseismic setting, and groundwater are included in the following sections:

Earthwork

Site Preparation

Initial site preparation will consist of the removal of surface vegetation, topsoil, root balls, sod or any other deleterious materials extending at least three feet beyond the perimeter of all areas to be developed. Non-engineered fills will be completely removed three feet beyond the extents of all spread and continuous footings, rigid pavement areas, floor slabs and other areas that require a

stabilized foundation. Stripped materials consisting of vegetation and organic materials should be wasted from the site or used to revegetate landscape areas.

Non-engineered fills may remain in areas where flexible pavements are to be placed if they are properly prepared. Proper preparation will consist of scarifying and moisture conditioning the upper nine inches and recompacting to the requirements of structural fill. It should be noted that compaction of fine-grained soils (silts and clays) as structural site fill will be very difficult, if not impossible, during wet and cold periods of the year.

The exposed natural subgrade should be proof-rolled prior to the placement of structural site grading fill, footings, floor slabs, or any other structural improvement made to the site. The proof-roll should be completed by driving a loaded piece of construction equipment, mounted with rubber tires, over the exposed natural subgrade surface at least twice. A CSG field engineer should oversee the proof roll and provide recommendations as needed. Soft spots should be completely excavated and removed if they are discovered. The soft spots should be replaced with granular structural fill. It is not anticipated that removal depth would be more than 2 vertical feet. If an excavation of more than 2 vertical feet is required, CSG should be notified to provide further recommendation.

In flexible pavement areas, unsuitable materials encountered during compaction and proof-rolling operations must be removed to a maximum depth of two feet and replaced with compacted granular structural fill.

Although evidence of underground facilities such as utilities, septic tanks, cesspools, basements, etc. was not observed during the field investigation, such features could be encountered during construction. If unexpected fills, debris or underground facilities are encountered, such features should be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Temporary Excavations

All temporary excavations should follow OSHA Sloping and Benching – 1926 Subpart P App B requirements, which take precedence over any recommendations presented in this report.

Temporary excavations in cohesive soil, above or below the water table, not exceeding four feet in depth, may be excavated with nearly vertical sideslopes. Excavations within loose and/or cohesionless soils will be very difficult as they tend to flow into the excavation. They will require very flat sideslopes and/or shoring, bracing and dewatering.

All excavations must be inspected periodically by qualified personnel. If any signs of instability, excessive sloughing or other signs of potential failure are noted, immediate remedial action shall be initiated.

Structural Fill

The on-site native soils were either finer by nature, or very rocky and cannot be used as structural fill. However, the on-site soils can be used as fill in landscape areas that are not expected to carry a load. The use of fine-grained soils (silts and clays) as landscape fill will be very difficult, if not impossible, during wet and cold periods of the year. Proper moisture control and conditioning will be required.

Fine-grained soils (silts and clays) are not recommended as structural fill in confined areas, such as around foundations and within utility trenches. This fill material should be composed of granular material.

All imported granular structural fill should consist of a fairly well-graded mixture of sand and gravel containing less than 15 percent fines (percent by weight of material passing the No. 200 sieve).

To stabilize soft subgrade conditions (if required), a mixture of coarse gravels and cobbles (stabilizing fill) should be utilized. A layer of 12 to 18 inches thick of stabilizing fill is typically sufficient to stabilize most soft/disturbed areas.

Table 4 shown below is indicative of the material that should be used as structural fill and road base throughout the site:

Table 4 – Structural Fill Gradation Requirements

Fill Type *	**Application**	**Requirements**		
		Gradation		**Plasticity**
		Size	**% Finer by Weight**	
Structural Fill	Required for all fill under foundations and floor slabs	3-inch No. 4 Sieve No. 200 Sieve	100 25 - 60 15-max	Liquid Limit 30-max Plasticity Index 6-max
Site Grading Fill	Fill in pavement and non-structural areas	4-inch No. 200 Sieve	100 35-max	Liquid Limit 36-max Plasticity Index 10-max
Stabilization Fill	Fill used to stabilize soft, potentially pumping subgrade	5-inch No. 200 Sieve	100 5-max	NA
Free Draining Granular Backfill	Retaining Walls	1½-inch 1-inch ½-inch No. 4	100 95 – 100 25 – 60 5-max	NA
Road Base	Fill used under the pavement sections	3/4” 3/8” No. 10 No. 40 No. 200	100 78-92 55-67 28-38 7-11	Non-Plastic

*All fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the geotechnical engineer for evaluation.

Fill Placement and Compaction

All fill should be placed in lifts not exceeding 8 inches in loose thickness. Moisture should be adjusted to within ± 2% of optimum moisture content. Lifts will need to be compacted in thinner lifts if smaller compaction equipment is used. Structural fills should be compacted in accordance

with the percent of maximum dry density as determined by the AASHTO T-180 (ASTM D-1557) compaction criteria and according to Table 5 below:

Table 5 - Fill Compaction Requirements

Location	Total Fill Thickness (feet)	Minimum Percentage of Maximum Dry Density
Beneath an area extending at least 3 feet beyond the footprint of a structure	0 to 8	95
Beneath pavements and travelled ways	0 to 8	95
Landscaped areas or areas not expected to carry a load	0 to 5	85
Landscaped areas or areas not expected to carry a load	5 to 8	92
Road Base	-	96

Prior to placement of fills, the subgrade must be prepared as discussed in the Site Preparation section of this report. In confined areas, subgrade preparation should consist of the removal of all loose and disturbed soils. Fill should be tested frequently for moisture content and compaction during placement. Should the results of the in-situ density tests indicate the specified moisture or compaction limits have not been met, the area represented by the test should be reworked and retested as required until the specified compaction is achieved. This may require adjustment of the moisture content.

Utility Trenches

We recommend that all utility trenches on-site or as a part of this site, should utilize a Type A-1a or A-1b (AASHTO Designation) soil as backfill material. The on-site materials can be used for trench backfill if they meet these classifications and are properly moisture conditioned. This should be verified by the materials testing agency. All utility trenches which will ultimately bear structural loads should be compacted at the structural density requirements established in Table 5.

Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented. Planters and other surface features which might retain water in areas adjacent to the buildings or pavements should be sealed, mechanically drained, or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately five percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration. Roof runoff should be collected in rain gutters and downspouts. Downspouts, roof drains or scuppers should discharge into extensions when the ground surface beneath such features is not protected by exterior slabs or paving to divert collected water a minimum of 10 feet away from structures. Sprinkler systems should not be installed within five feet of foundation walls. Landscaped irrigation adjacent to the foundation systems should be minimized.

Infiltration

An infiltration test was not performed on site. However, it was observed that in all areas with gravels and cobbles near the surface, the groundwater flowed into the test pits so quickly that the excavator could not remove the water faster than it was entering the test pit. In areas where silty clayey soils were encountered, the infiltration was very slow. These areas were encountered at TP-11 and TP-12, and would not be good for storm water storage or infiltration unless over excavated and replaced with free draining material to the existing gravel layer.

Structural Considerations

Spread and Continuous Wall Foundations

It is understood that the proposed structure will be supported on conventional spread and continuous wall foundations. These foundations should be established on undisturbed native soils. Under no circumstances shall footings be placed overlying non-engineered fills, loose soils, frozen soils, soil containing foreign debris, and any other deleterious material. Unsuitable material must be removed and replaced with an adequate structural fill as discussed in this report. For structural fill replacement beneath footings, the width of the structural fill shall be equal to width of the footing plus one foot on each side for each foot of fill thickness. For example, if the depth of structural fill is three feet then three feet of structural fill needs to extend past the edge of the footing on each side.

The footing should be placed such that there is a minimum of 4 feet of separation between groundwater and the bottom of footing.

For design, the following parameters are provided:

Table 6 - Structural Design Parameters

Design Element	Standard
Recommended minimum depth of embedment for frost conditions	30 inches
Recommended minimum depth of embedment for non-frost conditions	15 inches
Recommended maximum bearing capacity of in-situ soil	1,500 pounds per square foot
Recommended width for continuous wall footings	18 inches
Recommended width for isolated spread footings	36 to 48 inches
Recommended bearing pressure increase for seismic loading	33%
Coefficient of friction between footing and native gravelly soils	0.55
Coefficient of friction between footing and native clayey soils	0.35

Settlement of foundation elements are expected to be on the order of 1" or less with approximately 50% occurring during construction. This settlement can be expected if the project is constructed in accordance with recommendations found within this report.

Lateral Resistance

Passive resistance provided by properly placed and compacted structural fill above the water table may be considered to a fluid with a pressure of 442 pounds per cubic foot (K_p =3.69). Active resistance may be considered equivalent to a fluid with a pressure of 33 pounds per cubic foot (K_a = 0.27). Lateral earth pressure can be assumed to be much higher if material behind structural walls is

not free draining. Passive and active resistance pressures will vary if groundwater is encountered. At this site, structures should be constructed such that the groundwater is below the depth of foundations, and therefore should not affect lateral resistance.

Floor slabs

Due to the intended use and anticipated loading, floor slabs should be constructed with a minimum of 4" of concrete (4,000 psi, air-entrained – 6% ± 1%) over 4" of clean gravel material. The subgrade material shall be properly prepared as discussed previously in this report. Under no circumstances should floor slabs be established over non-engineered fill, loose or disturbed soils, sod, rubbish, construction debris, other deleterious materials, frozen soils, or soils with ponded water. If constructed in accordance with this section, settlements of at-grade floor slabs supporting loads of 200 pounds per square foot should be on the order of ¼" or less.

Where appropriate, saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or any cracks that develop should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

The use of a vapor barrier should be considered beneath concrete slabs on grade that will be covered with wood, tile, carpet or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor barrier, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor barrier.

Pavements

Pavement sections were designed using AASHTO 93 design methodologies and assumed traffic volumes from the traffic study completed by our office. Based on laboratory test results, N-values obtained from the SPT tests during the field exploration, and the in-situ soils, a CBR value of 6% was used for the underlying subgrade soils. This resulted in a subgrade resilient modulus (M_{RSG}) of 8,000 pounds per square inch. The anticipated traffic loading consists of mostly automobiles with the occasional medium to heavy weight truck. The following design traffic (18-k Equivalent Single Axle Loads) were assumed.

Section	Total Design ESALs*	Reliability Level	Design Life
Local Street	240,000	90%	20 years
Collector Street	700,000	90%	20 years
Parking Area	60,000	90%	20 years
Private Road	60,000	90%	20 years

*If the traffic anticipated on site is different from that assumed, Civil Solutions Group should be notified.

Considering the underlying subgrade material and anticipated traffic and loading, the following pavement sections are recommended as shown in Table 7:

Table 7 - Pavement Recommendations

Section	Recommended Pavement Sections (Inches)				
	Asphalt Concrete	Portland Cement Concrete	Untreated Base Course	Granular Borrow	Total
Local Street	3.0	-	6.0	6.0	15.0
Collector Street	3.0	-	6.0	10.0	19.0
Parking Area	3.0	-	8.0	-	11.0
Private Road	3.0	-	8.0	-	11.0
	-	5.0	6.0	-	11.0
Dumpster Pads	-	6.0	6.0	-	12.0

The rigid pavement section is for non-reinforced Portland cement concrete. Concrete should be designed in accordance with the American Concrete Institute (ACI). The concrete should have a minimum 28-day unconfined compressive strength of 4,000 pounds per square inch and contain 6 percent ± 1 percent air entrainment.

Public pavement areas are to follow minimum design standards set by the reviewing authority, or the recommendations found in this report if they are greater than the minimum design standards.

Pavement Maintenance

All paved areas should have adequate crown and slope to provide positive drainage and prevent ponding of surface water and infiltration below the pavement section. Water collection devices such as gutters and ditches should be incorporated into the parking lot design to prevent percolation of surface water below the pavement section.

Pavement sections have not been designed to support construction equipment. As such, the contractor should protect pavement areas from damage that may result from construction traffic.

The pavement sections provided in this report are minimums for the given design criteria. Periodic maintenance is critical to the long-term performance of the pavement sections. A maintenance program that includes surface sealing, joint cleaning and sealing, joint grinding, repair and replacement of cracked slabs and timely repair of cracks and deteriorated areas will be critical to the pavement meeting its design life.

Soil Corrosiveness

The soil was sampled for Sulfate levels at soil depths that will come into direct contact with the footings and foundations. These chemical levels are shown in Table 3 for reference.

Cement Use

Type I or IA mixes may be used in the design of these improvements. The soil tested contained a negligible amount of water soluble sulfates. Based on our test results, concrete in contact with the in-situ soils will have a low potential for sulfate reaction and therefore the mix types of I or IA are acceptable. Other types of mixtures may be used by the design team if other strength/functionality parameters are desired.

Construction Considerations

On most project sites, the site grading is generally accomplished early in the construction phase. However, as construction proceeds the subgrade may be disturbed due to utility excavations, construction traffic, desiccation, rainfall, etc. As a result, the floor slab or footing subgrade may not be suitable for placement of crushed gravel and concrete and corrective action will be required. We recommend areas underlying floor slabs and footings be rough graded and then thoroughly proof-rolled with a loaded tandem axle water or dump truck prior to final grading and placement of crushed gravel or concrete. Attention should be given to high traffic areas that were rutted and previously disturbed and to areas containing backfilled trenches. Areas where unsuitable conditions are located should be repaired by removing and replacing the affected material with properly compacted structural fill. All structural subgrade areas should be moisture conditioned and properly compacted to the recommendations in this report immediately prior to placement of the gravel and concrete.

Geoseismic Setting

Faulting

Based on a review of Utah Geological Survey fault maps, the site is approximately 1.7 miles east of the East Cache fault zone central section.

Soil Class

The soil site class is D (S_1 =0.32 g & S_S = 0.999 g), with a Seismic Design Category D (Risk Category II) in accordance with Chapter 20 of ASCE 7 and IBC 2018.

Liquefaction

The site is in an area that has been classified as high to moderate liquefaction potential by the Utah Geological Survey. Liquefaction requires water, seismic activity, and loose sandy soils. Water and sandy soils were encountered during the site investigation. Due to the nature of the project, a full liquefaction analysis was not completed for the site.

Estimated Historic High Water Table

In order to determine the Estimated Historic High Water Table (EHHWT) elevation for the site, test pits were excavated with a back hoe excavator to a depth of 12-feet, or until the EHHWT was encountered. The EHHWT was observed in the soil pit based upon the soil characteristics of reduction/oxidation cycles that occur in soil over many years, possibly even centuries. The accepted methodology for determining the EHHWT is observing the soil layer where mottling occurs. Mottling can be described as contrasting or blotchy color patterns within a dominant soil horizon. Mottling is formed when the seasonal water table rises into soil with aerobic conditions changing the conditions in the soil from aerobic (oxygen rich) to anoxic (lacking oxygen).

Another indicator of anoxic soil conditions is the presence of ferrous iron in the soil. The prolonged soil-saturation results in anaerobiosis leading to the formation of ferrous iron. As the groundwater migrates from the historic high water mark and below the ferrous iron is distributed throughout the soil profile. This type of occurrence is referred to as redoximorphic features. The EHHWT measurements (as measured down from existing grade) are tabulated in Table 9 below:

Table 8 - Estimated Historic High Water Table

Bore Hole Number	EHHWT Depth (feet)
TP-1	3.5
TP-2	4.5
TP-3	4.5
TP-4	3.0
TP-5	4.0
TP-6	3.5
TP-7	*
TP-8	*
TP-9	*
TP-10	*
TP-11	6.0
TP-12	3.5
TP-13	4.5
TP-14	2.8
TP-15	*

*Due to in-situ soil conditions, typical EHHWT indicators were difficult to determine. Due to seasonal changes, we recommend using an EHHWT level of 1.0 feet above the encountered groundwater depth shown in Table 9.

Groundwater

Immediately following drilling operations, the groundwater was measured in each boring. Seasonal and longer-term groundwater fluctuations on the order of one and one-half to three feet are projected, with the highest seasonal levels generally occurring during the late spring and early summer months. The groundwater measurements (as measured down from existing grade) are tabulated in Table 9 below:

Table 9 - Groundwater Depth

Bore Hole Number	Time of Drilling (feet)
B-1	4.5
TP-1	4.5
TP-2	5.5
TP-3	8.5
TP-4	4.5
TP-5	4.7
TP-6	4.6
TP-7	4.0
TP-8	5.5
TP-9	4.5
TP-10	6.5
TP-11	9.0
TP-12	6.0
TP-13	5.5

TP-14	3.2
TP-15	4.5

Closure

Civil Solutions Group should be retained to provide observations during grading, excavation, foundation construction, and other earth-related construction activities related to this project. The conclusions and recommendations presented in this report are based on the results of the field and laboratory tests which, in our opinion, define the characteristics of the soils at this site in a satisfactory manner. However, this report does not reflect variations that may occur between borings, across the site, or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. If during or after construction, conditions are encountered which appear to be different than those presented in this report, it is requested that our office be advised, in order that appropriate action be taken.

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. Any persons using this report for bidding or construction purposes should perform independent investigations as they deem necessary to determine subsurface conditions. The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. If changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Civil Solutions Group reviews the changes and either verifies or modifies the conclusions of this report in writing.

Glossary/Explanation of Terms or Procedures

Throughout this report, we have used a number of words or phrases which may be unfamiliar in nature. Also, several procedural concepts have been mentioned repeatedly. For this reason, we have decided to define or discuss these items to better communicate with the reader(s).

Compaction and Lift Size - Contractors should be aware that there is direct relationship between lift size and size of the compacting equipment. The smaller the compactor, the smaller the maximum lift height. With "wacker" compactors, the maximum lift should be held at about 3-4-inches. With walk-behind trench compactors (2-tons or so), the lifts should be no more than 6-inches thick. Eight-inch lifts can be used with large ride-on devices (7-10-tons or greater) that roll and vibrate/pound. Hoe pack devices on track hoes or backhoes can compact 6-8-inch lifts depending on size. However, the maximum lift size should not exceed 8-inches for most compactors. Note: a lift is defined as the loose or un-compacted thickness of the soil layer being compacted

Groundwater level - The groundwater level is a "rough guess" of where the uppermost water level is in a soil. We look for the first sign of free water coming in from the trench walls or appearing on the soil. In the soil logs, the groundwater level is identified by a solid or darkened triangle with a wavy line below it.

Liquefaction - Loss of bearing strength of saturated and very fine-grained silts and sands during severe earthquakes. This strength-loss is due to the slow dissipation of pore pressure (due to low permeability) and the subsequent reduction of particle-to-particle contact induced by the shaking motion of the earthquake.

Piezowater or Piezometer - To measure the groundwater level after a soil test pit is excavated, a pipe (a piezometer) is placed in the pit and left for at least 48-hours. The bottom 12-inches of the piezometer is slotted and capped to keep soil from entering and plugging up the pipe. The piezometer is then backfilled. After 48-hours, the water level in the piezometer is recorded. This level is the piezowater level. It is often higher than the point where water is first seen in a test pit during excavation. The importance is that the piezometer level is the potential depth of the groundwater for a site location should a 'dig' be done at the site. However, this level may change over time depending on weather conditions (wet or dry years and periods); rust or mottling of the soils may indicate an historical level of the water. In the soil logs, the piezowater level is a line with an "open" triangle above it and a wavy line below the triangle. The "open" triangle signifies the fact that the overlying soil "cap" has been removed.

Topsoil - It is generally defined as surface soils (silts or clays) with greater than 2-percent organics; this soil is often dark brown to black in color. It generally has visible roots or organic matter and is highly compressible. Topsoil should never be used under a footing or load bearing structure; it is generally, too compressible and with loading, settles over time. It should be stockpiled for use in landscaped areas, used for wetland mitigation/re-seeding, as a pond liner, or exported from the site.

Undisturbed soil - This is soil in its natural state, undisturbed by past excavation, farming, construction, or perturbation of any type. It is a most important feature. Areas that have been filled are always considered disturbed. On the other hand, "cut" areas can be considered undisturbed if the soil was cut with a straight bladed bucket edge, and not tines. If soils are disturbed, and footings or walls will be bear on these soils, they must be re-compacted.

Non-Engineered Fill – Non-engineered fill material is non-native (imported) material that has not been tested in the lab for engineering properties nor has a record of proper placement and compaction. Therefore, it should not be used for structural fill. This material can be used if properly prepared, but Civil Solutions Group recommends any non-engineered material in which loads will bear on be tested prior to placement. Once placed, this material should be tested to ensure structural properties are met. Recommendations in this report are based upon the materials encountered during the field investigation.

Appendix

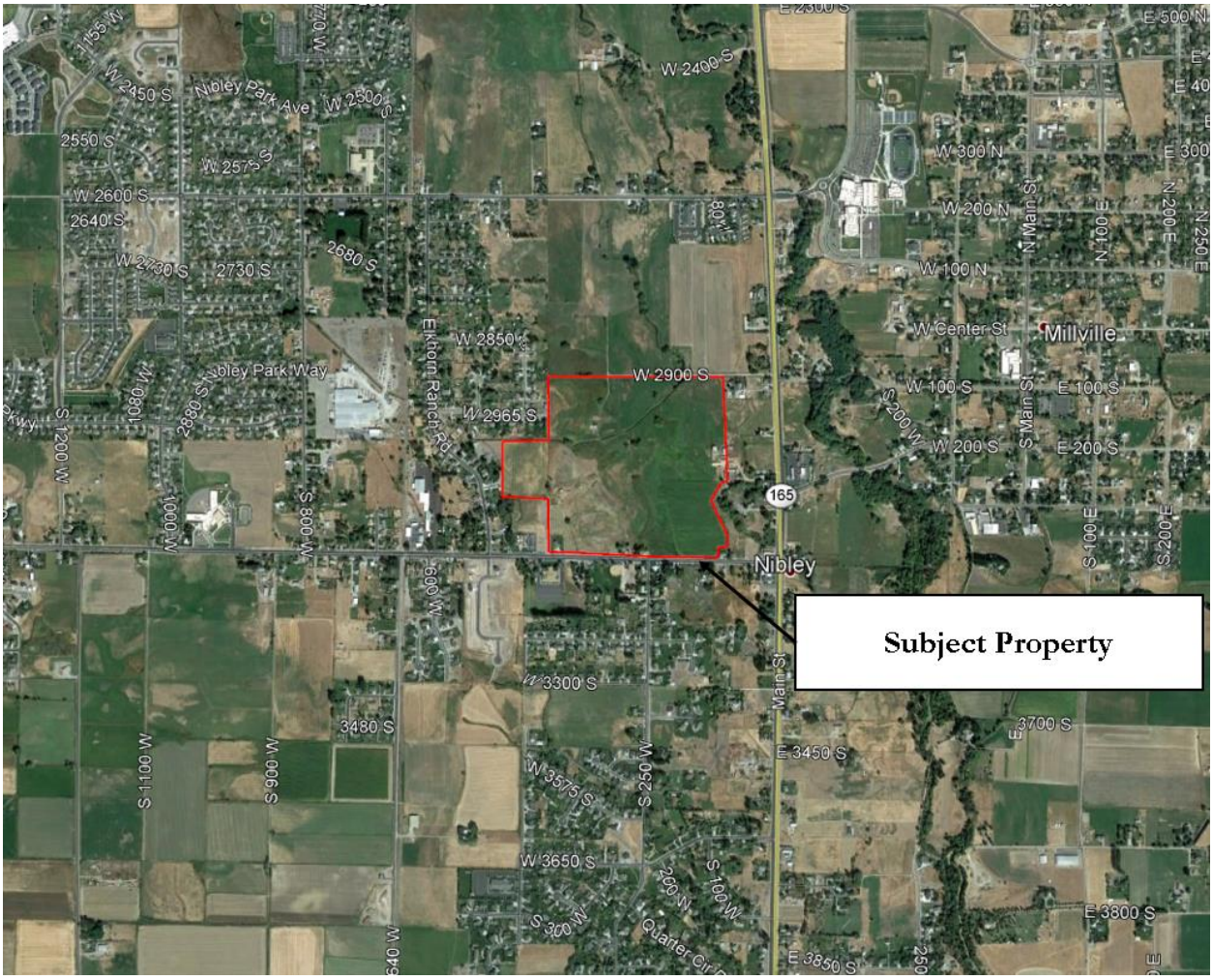


Figure 1 - Vicinity Map

Figure 2 - Site Map

Figure 3 - Looking North

Figure 4 – Looking North

WATER LEVEL	USCS	DESCRIPTION	DEPTH (FT.)	BLOW COUNT	SAMPLE SYMBOL	MOISTURE (%)	DRY DENSITY (PCF)	% PASSING 200	LIQUID LIMIT (%)	PLASTICITY INDEX	REMARKS
1	2	3	4	5	6	7	8	9	10	11	12

COLUMN DESCRIPTIONS

1 **Water Level**: Depth to measure groundwater table. See symbol below.

2 **USCS**: Graphic depiction of subsurface material encountered; typical symbols are explaned below.

3 **Description**: Description of material encountered; may include color, moisture, grain size, and density/consistency.

4 **Depth (ft.)**: Depth in feet below the ground surface.

5 **Blow Count**: Number of blows required to advance SPT sampler (12") beyond first 6" using a 140-lb hammer with a 30 inch drop.

6 **Sample Symbol**: Type of soil sample collected at depth interval shown; sampler symbols are explained below.

7 **Moisture (%)**: Water content of soil sample measured in laboratory; expressed as percentage of dry weight of specimen.

8 **Dry Density (pcf)**: The density of a soil measured in laboratory; expressed as pounds per cubic foot.

9 **% Passing 200:** Fines content of soil sample passing a No. 200 sieve measured in laboratory, expressed as a percentage.

10 **Liquid Limit (%):** Water content at which a soil changes from plastic to liquid behavior.

11 **Placsticity Index (%):** Range of water content at which a soil exhibits plastic properties.

12 **Remarks**: Comments and observations regarding drilling or sampling made by driller or field personnel. Other field and laboratory test results; using the following abbreviations:

CEMENTATION	MODIFIERS	MOISTURE CONTENT (FIELD TEST)
Weakly: Crumbles or breaks with handling of slight finger pressure.	Trace <5 %	**Dry:** Absence of moisture, dusty, dry to the touch.
Moderately: Crumbles or breaks with considerable finger pressure.	Some 5 - 12%	**Moist:** Damp but no visible water.
Strongly: Will not crumble or break with finger pressure.	With >12%	**Saturated:** Visible water, usually soil below water table.

Descriptions and stratum lines are interpretive; field descriptions may have been modified to reflect lab test results. Descriptions on the logs apply only at the specific boring locations and at the time the borings were advanced; they are not warranted to be representative of subsurface conditions at other locations or times.

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			SYMBOLS Graph	SYMBOLS Letter	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS: More than 50% of No. 200 sieve size.	GRAVELS: More than 50% of coarse fraction retained in No. 4 sieve.	CLEAN GRAVELS (little or no fines)		GW	Well-Graded Gravels, Gravel-Sand Mixtures, Little or No Fines
				GP	Poorly Graded Gravel, Gravel-Sand Mixtures, Little or No Fines
		GRAVELS WITH FINES (appreciable amount of fines)		GM	Silty Gravels, Gravel-Sand-Silt Mixtures
				GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	SANDS: More than 50% of coarse fraction passing through No. 4 sieve.	CLEAN SANDS (little or no fines)		SW	Well-Graded Sands, Gravelly Sands, Little or No Fines
				SP	Poorly Graded Sands, Gravelly Sands, Little or No Fines
		SANDS WITH FINES (appreciable amount of fines)		SM	Silty Sands, Sand-Silt Mixtures
				SC	Clayey Sands, Sand-Clay Mixtures
FINE-GRAINED SOILS: More than 50% of material is smaller than No. 200 sieve size.	SILTS AND CLAYS: Liquid limit less than 50%			ML	Inorganic Silts and Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
				CL	Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
				OL	Organic Silts and Organic Silty Clays of Low Plasticity
	SILTS AND CLAYS: Liquid limit greater than 50%			MH	Inorganic Silts, Micacious or Diatomacious Fine Sand or Silty Soils
				CH	Inorganic Clays of High Plasticity, Fat Clays
				OH	Organic Clays of Medium to High Plasticity, Organic Silts
HIGHLY ORGANIC SOILS				PT	Peat, Humus, Swamp Soils with High Organic Contents

Note: Dual Symbols are used to indicate borderline soil classifications

STRATIFACTION

DESCRIPTION	THICKNESS
Seam	up to 1/8"
Layer	1/8" - 12"

STRATIFACTION

Occasional: One or less per 6" of thickness.

Numerous: More than one per 6" of thickness.

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Bulk/Bag Sample
- Standard Penetration Split Spoon Sampler
- Rock Core
- No Recovery
- 3.25" OD 2.42" ID D&M Sampler
- 3.0" OD 2.42" ID D&M Sampler
- California Sampler
- Thin Wall

LOG KEY SYMBOLS

- Water Level

Figure 5 – Key to Soil Logs

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/3/2020	LOGGED BY:	JP
METHOD OF DRILLING:	CME 45C	BORE NUMBER:	B-1

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	GRAVELS AND COBBLES WITH SOME FINES (GP), BROWN, MEDIUM DENSE											
5				1.1			5 6 9	15				
	COURSE SAND WITH GRAVELS AND COBBLES (SP-SM), BROWN, MEDIUM DENSE											
10				1.2			2 6 12	18		7.8	--	NP
	COURSE TO MEDIUM GRAIN SAND (SP-SM), BROWN, MEDIUM DENSE											
15				1.3			2 3 5	8				

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/3/2020	LOGGED BY:	JP
METHOD OF DRILLING:	CME 45C	BORE NUMBER:	B-1

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	COURSE TO MEDIUM GRAIN SAND (SP-SM), BROWN, MEDIUM DENSE			1.3			2 3 5	8				
	END OF DRILLING											
20												
25												
30												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-1

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	GRAVELS AND COBBLES WITH SOME FINES (GP), BROWN, MEDIUM DENSE											
5												
	END OF DRILLING											
10												
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-2

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	SANDY SILT (ML), BROWN, MEDIUM STIFF					12.0						
5	GRAVELS AND COBBLES WITH SOME FINES (GP), BROWN, MEDIUM DENSE											
	END OF INVESTIGATION											
10												
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-3

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	GRAVELS AND COBBLES WITH SOME FINES (GP), BROWN, MEDIUM DENSE											
5												
	SILTY SAND (SM), BROWN, MEDIUM DENSE			3.1								
10	SANDY SILT (ML), BROWN, MEDIUM STIFF			3.2								
	END OF INVESTIGATION											
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup inc.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-4

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	GRAVELS AND COBBLES WITH SOME SANDS (GP), BROWN, MEDIUM DENSE											
	SILTY SAND (SM), BROWN, MEDIUM DENSE											
	COURSE SANDY GRAVELS AND COBBLES (GM), BROWN, MEDIUM DENSE											
5												
	GRAVELS AND COBBLES WITH SOME SANDS (GP), BROWN, MEDIUM DENSE											
	SANDY SILT (ML), BROWN, MEDIUM STIFF			4.1						26.2	--	NP
	END OF INVESTIGATION											
10												
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-5

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	SANDY GRAVELS WITH COBBLES (GM), BROWN, MEDIUM DENSE											
5	GRAVELS AND COBBLES WITH SOME SAND (GP), BROWN, MEDIUM DENSE											
10	END OF INVESTIGATION											
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-6

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	SANDY GRAVELS WITH COBBLES (GM), BROWN, MEDIUM DENSE											
5												
	END OF INVESTIGATION											
10												
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-7

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	SILTY CLAY (CL), GRAY, MEDIUM STIFF					10.0						
5	SANDY GRAVELS WITH COBBLES (GM), GRAY, MEDIUM DENSE											
10	END OF INVESTIGATION											
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-8

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	SILTY CLAY (CL), DARK GRAY, MEDIUM STIFF			8.1		12.0						
5	CLAYEY SANDY GRAVELS WITH COBBLES (GM), GRAY, MEDIUM DENSE											
	CLAYEY SILT (MH), DARK GRAY, SOFT			8.2						64.3	67	33
10	END OF INVESTIGATION											
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-9

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	SILTY CLAY (CL), DARK GRAY, MEDIUM STIFF					8.0						
5	CLAYEY SANDY GRAVELS WITH COBBLES (GM), GRAY, MEDIUM DENSE											
	CLAYEY SILT (MH), DARK GRAY, SOFT											
10	END OF INVESTIGATION											
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19–384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/8/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP–10

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N–VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN, SOME GRAVELS											
	MEDIUM TO COURSE SANDY GRAVELS AND COBBLES (GM), BROWN, MEDIUM DENSE											
5												
10												
	END OF INVESTIGATION											
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup inc.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19–384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/9/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP–11

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N–VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN, SOME GRAVELS											
	SILTY CLAY (CL), BROWN, MEDIUM STIFF											
5				11.1		5.0				24.5	30	20
	SILTY CLAY (CL), GRAY, MEDIUM STIFF											
				11.2								
10	SILTY SAND WITH GRAVELS AND COBBLES (GM), GRAY, MEDIUM DENSE											
	END OF INVESTIGATION											
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/9/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-12

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN, SOME GRAVELS											
	SILTY CLAY (CL), DARK GRAY, MEDIUM STIFF											
				12.1		12.0						
	SILTY CLAY (CL), BROWN, MEDIUM STIFF											
5												
	SILTY CLAY (CL), GRAY, MEDIUM STIFF					5.0						
	▽			12.2						30.4	37	23
	SILTY SAND WITH GRAVELS AND COBBLES (GM), GRAY, MEDIUM DENSE											
10												
	END OF INVESTIGATION											
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19–384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/9/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP–13

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N–VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	SANDY SILT (ML), BROWN, MEDIUM STIFF					5.0						
5	SILTY SAND WITH GRAVELS AND COBBLES (GM), BROWN, MEDIUM DENSE											
	END OF INVESTIGATION											
10												
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19-384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/9/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP-14

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N-VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	SILTY SAND WITH GRAVELS AND COBBLES (GM), GRAY, MEDIUM DENSE											
5												
	END OF INVESTIGATION											
10												
15												

GEOTECHNICAL INVESTIGATION BORE LOG

civilsolutionsgroup INC.

PROJECT NAME:	ROPELATO SUBDIVISION	LOCATION:	3200 S 250 W NIBLEY UT, 84321
PROJECT NUMBER:	19–384	CLIENT:	VISIONARY HOMES
DATE DRILLED:	1/9/2020	LOGGED BY:	JP
METHOD OF DRILLING:	BACKHOE	BORE NUMBER:	TP–15

DEPTH (FT)	DESCRIPTION	GRAPHIC LOG	SAMPLE TYPE	SAMPLE NUMBER	FIELD VALUES			LAB RESULTS				
					COMPRESSIVE STRNGTH (TSF)	SHEAR STRENGTH (TSF)	N–VALUE	N'	DRY DENSITY (PCF)	MOISTURE (%)	LIQUID LIMIT (%)	PLASTIC LIMIT (%)
	TOPSOIL DARK BROWN											
	SILTY CLAY (CL), GRAY, MEDIUM STIFF											
	SILTY SAND WITH GRAVELS AND COBBLES (GM), GRAY, MEDIUM DENSE											
5	▽											
	END OF INVESTIGATION											
10												
15												