NIBLEY CITY COUNCIL MEETING AGENDA
Thursday, July 10, 2025 – 6:30 PM

***In accordance with Utah Code Annotated 52-4-207 and Nibley City Resolution 12-04, this meeting may be conducted electronically. The anchor location for the meeting* will be Nibley City Hall, 455 West 3200 South, Nibley, Utah. The public may also view the meeting via the YouTube link provided at *www.nibleycity.gov*.**
Public comment should be submitted to *cherylb@nibleycity.gov* by 6:30 p.m. and will be read into the public record.

1. Opening Ceremonies (Councilmember Sweeten)
2. Call to Order and Roll Call (Chair)
3. Approval of the June 18 and June 26, 2025, Meeting Minutes and the Current Agenda (Chair)
4. Public Comment Period[1] (Chair)
5. Park & Recreation Advisory Report
6. **Discussion and Considerations:** Ordinance 25-15—Amending 19.12.040 Mixed Residential Zone R-M, 19.20.030 Mixed Use, 19.32 Residential Planning Unit Developments (R-PUD), 19.48 Transfer of Development Rights, and 21.10.020 Open Space Subdivision, Including Modifications to Minimum/Maximum Project Acreage, Setbacks, Amenity Requirements, Rear-Loaded Housing, Mixed-Use Development, Removing R-M Application Map, and Allowing Fee In-Lieu of Open Space Requirements (Second Reading)
7. **Discussion and Consideration:** Resolution 25-23—Agreement with the State of Utah Department of Transportation, Active Transportation Cooperative Agreement, Accepting Ownership of Trail ROW and Responsibility of Maintenance (First Reading)
8. **Discussion and Consideration:** Resolution 25-24— Authorizing Not More Than $3,800,000 Taxable Water Revenue Bonds, In One or More Series, For Water System Improvements, and Related Improvements; Providing for the Publication of a Notice of Public Hearing and Bonds to Be Issued: Fixing the Maximum Aggregate Principal Amount, Interest Rate, Maturity, and Discount of the Bonds; Providing For the Running of a Contest Period; And Related Matters (First Reading)
9. **Discussion and Considerations:** Resolution 25-25—Recording a Protective Easement for UTE ladies'-tresses in the Nibley City Center Park (First Reading)
10. **Council and Staff Reports**

Nibley City's next scheduled Council meeting will be on Thursday, July 31, 2025, at 6:30 p.m.

[1] *Public input is welcomed at all City Council Meetings. 15 minutes have been allotted to receive verbal public comment. Verbal comments shall be limited to 3 minutes per person. A sign-up sheet is available at the entrance to the Council Chambers starting 15 minutes prior to each council meeting and at the rostrum for the duration of the public comment period. Commenters shall identify themselves by name and address on the comment form and verbally for inclusion in the record. Comment will be taken in the order shown on the sign-up sheet. Written comment will also be accepted and entered into the record for the meeting if received prior to the conclusion of the meeting. Comments determined by the presiding officer to be in violation of Council meeting rules shall be ruled out of order.*

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Nibley City Council
Agenda Report for
July 10, 2025

Agenda Item #6

Description	**Discussion and Considerations:** Ordinance 25-15—Amending 19.12.040 Mixed Residential Zone R-M, 19.20.030 Mixed Use, 19.32 Residential Planning Unit Developments (R-PUD), 19.48 Transfer of Development Rights, and 21.10.020 Open Space Subdivision, Including Modifications to Minimum/Maximum Project Acreage, Setbacks, Amenity Requirements, Rear-Loaded Housing, Mixed-Use Development, Removing R-M Application Map, and Allowing Fee In-Lieu of Open Space Requirements (Second Reading)
Presenter	Levi Roberts, City Planner
Staff Recommendation	Approve Ordinance 25-15—Amending 19.12.040 Mixed Residential Zone R-M, 19.20.030 Mixed Use, 19.32 Residential Planning Unit Developments (R-PUD), 19.48 Transfer of Development Rights, and 21.10.020 Open Space Subdivision, Including Modifications to Minimum/Maximum Project Acreage, Setbacks, Amenity Requirements, Rear-Loaded Housing, Mixed-Use Development, Removing R-M Application Map, and Allowing Fee In-Lieu of Open Space Requirements
Planning Commission Recommendation	Approve Ordinance 25-15—Amending 19.12.040 Mixed Residential Zone R-M, 19.20.030 Mixed Use, 19.32 Residential Planning Unit Developments (R-PUD), 19.48 Transfer of Development Rights, and 21.10.020 Open Space Subdivision, Including Modifications to Minimum/Maximum Project Acreage, Setbacks, Amenity Requirements, Rear-Loaded Housing, Mixed-Use Development, Removing R-M Application Map, and Allowing Fee In-Lieu of Open Space Requirements
Reviewed By	Justin Maughan, City Manager

Background:

Recently, there was an application to assign a zone of Mixed Residential (R-M) to a piece of property at approximately 3701 S 1200 W. The Planning Commission recommended to City Council to zone the property as R-2A and expressed the need to review the R-M zone to ensure its application would be appropriate on a more widespread scale. It was discussed that the Planning Commission should review the ordinance prior to this discussion.

Staff has reviewed the existing ordinance and the Planning Commission has held several workshops to discuss potential changes to the R-M ordinance. Based upon these discussion, there are a number of amendments recommended, which impact the R-M, R-PUD and Mixed-Use development within the Town Center Area. Changes are intended to:

- Direct the R-M zone in appropriately planned areas that is consistent with the General Plan
- Disperse rather than concentrate higher density residential development
- Encourage the use of the R-PUD where appropriate
- Require some level of commercial mixed-use in appropriate areas
- Allow for a fee in-lieu of open space requirements in areas that are already well served by parks to focus open space and improvements in areas that lack open space.

Based upon these discussions and Staff's recommendation, the following changes, which are incorporated into the R-M zone, the R-PUD zone, and the Open Space Subdivision standards, where appropriate, have been incorporated into the draft ordinance:

1. Establish a minimum zone size of 10 acres and maximum zone size of 40 acres for R-M zone. This standard is intended to balance the need for a critical mass to maintain common areas and provide meaningful open space and amenities, while not concentrating higher density of one housing type in one location.
2. Lower the minimum size of R-PUD from 40 to 20 acres. This is intended to encourage the use of R-PUD in more areas, which requires a mix of housing types.
3. Raise maximum density of R-PUD from 5 to 7 units/net developable acre. This is intended to encourage use of R-PUD for larger mixed housing projects
4. Requires that 10% of land within a R-M development which is within 200 feet of State highway and within 400 feet of the intersection of two arterial streets must be for commercial use, which may include commercial/residential mixed use. Standards and specification for this regulation closely align with the mixed-use provision of commercial zones within the town center area (which requires at least 50% commercial). Additionally some clarifications and modifications are made to the former standard with regards to calculation of density, housing provision, and architectural design standards.

5. Allow an additional 2 units/acre (up to 12 units/acre) for projects that include mixed-use to incentivize mixed use development.
6. Only allow R-M zone in high-density residential and town center areas, as defined by future land use map, in support of the General Plan.
7. Amends design standard to require rear-loaded ingress/egress for multi-family housing. Although the existing ordinance encourages rear-loaded garages, they are not required. Designs with front-loading garages have a much less pedestrian-oriented street with continuous driveway access and are often difficult to effectively plow snow. A similar standard is incorporated into the R-PUD ordinance for consistency.
8. Removes the R-M Application Map from section. The R-M application map defines which parcels are eligible to be zoned as R-M. However, the future land use map provides guidance for zoning decisions. This simply adds another layer in the process of considering a rezone that may be unnecessary.
9. Modify setback standards. Allow reduced front yard setback for rear loaded units (15') while increasing rear yard setback (20') for such units.
10. Reduce building height to 40; when within 300' of existing residential zones.
11. Modify language that requires single-family within 300' of adjacent single-family. Instead limit construction to two stories and no more than 100' in building length as a transition area.
12. Remove Clubhouse, Pool or Splashpad from list of required amenities. This is to support more affordable housing options while focusing on supporting a community-wide recreation facility rather than several small private facilities.
13. Add a fee-in-lieu option for required open space and amenities for projects that are within ½ mile of City Park (>2 acres). This support the goals of the Parks, Recreation and Open Space Master Plan that focuses on improving existing parks, while requiring open space in areas that are not well served by parks

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ORDINANCE 25-15

AMENDING 19.12.040 MIXED RESIDENTIAL ZONE R-M, 19.20.030 MIXED USE, 19.32 RESIDENTIAL PLANNING UNIT DEVELOPMENTS (R-PUD), 19.48 TRANSFER OF DEVELOPMENT RIGHTS, AND 21.10.020 OPEN SPACE SUBDIVISION, INCLUDING MODIFICATIONS TO MINIMUM/MAXIMUM PROJECT ACREAGE, SETBACKS, AMENITY REQUIREMENTS, REAR-LOADED HOUSING, MIXED-USE DEVELOPMENT, REMOVING R-M APPLICATION MAP, AND ALLOWING FEE IN-LIEU OF OPEN SPACE REQUIREMENTS

WHEREAS, Nibley City regulates land use within Nibley City boundaries; and

WHEREAS, The Nibley City General Plan focuses on using the Future Land Use Map for growth and zoning decisions; and

WHEREAS, Nibley City Parks, Recreation and Open Space Master Plan emphasizes acquiring and maintaining new open space in strategic locations, while focusing on maintaining existing resources; and

WHEREAS, Nibley City promotes commercial and economic development in appropriate areas; and

WHEREAS, the Nibley City Moderate Income Housing Plan promotes zoning for densities necessary to facilitate the production of moderate-income housing.

NOW, THEREFORE, BE IT ORDAINED BY THE NIBLEY CITY COUNCIL OF NIBLEY, UTAH THAT:

1. The attached amendments to Nibley City Code 19.20.030, 19.32, 19.48, 21.10.020 be adopted.
2. All ordinances, resolutions, and policies of the City, or parts thereof, inconsistent herewith, are hereby repealed, but only to the extent of such inconsistency. This repealer shall not be construed as reviving any law, order, resolution, or ordinance, or part thereof.
3. Should any provision, clause, or paragraph of this ordinance or the application thereof to any person or circumstance be declared by a court of competent jurisdiction to be invalid, in whole or in part, such invalidity shall not affect the other provisions or applications of this ordinance or the Nibley City Municipal Code to which these amendments apply. The valid part of any provision, clause, or paragraph of this ordinance shall be given independence from the invalid provisions or applications, and to this end the parts, sections, and subsections of this ordinance, together with the regulations contained therein, are hereby declared to be severable.
4. This ordinance shall become effective upon posting as required by law.

PASSED BY THE NIBLEY CITY COUNCIL THIS ___ DAY OF _____ 2025.

_____

Larry Jacobsen, Mayor

ATTEST: _____

Cheryl Bodily, City Recorder

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19.12.040 Mixed Residential Zone R-M

A. Purpose: The purpose of the Mixed Residential Zone is to provide a variety of housing types to accommodate the diverse housing preferences of the community's existing and future residents that are supported by an appropriate provision of jobs, retail, services, open space and amenities.

B. Definitions: Refer to NCC 19.04 and 19.32.020

C. Zone size: The minimum total area for an R-M zoned area shall be 10 acres. The maximum total area for an R-M zoned area is 40 acres.

~~B.~~D. Location: An R-M zone may only be approved in areas designated as high-density residential or Town Center on the Future Land Use Map of the Nibley City General Plan.

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E. Use Regulations: See NCC 19.20. Allowed uses in this zone may be provided either separately from or within the same building or lot as other allowed uses, if approved pursuant to an authorized site plan.

1. Commercial/ Mixed-Use Requirement: For an R-M zone development, which is partially located within 200 feet of a State Highway or within 400 feet of the intersection of two arterial streets, as defined in the Transportation Master Plan, at least 10% of land must be dedicated to commercial uses. The 10% use may include the entirety of the ground floor area of buildings with commercial uses on the ground floor or horizontally separated uses where commercial uses occupy an entire building. For buildings with partial commercial uses on a floor or vertically separated uses, only the ground floor area of the portion dedicated to commercial uses may be counted. The portion of land that is apportioned as a commercial use shall include the ground floor area of commercial uses, as described above, and supportive uses, including parking and landscaping. Parking, landscaping, and other supportive uses for a mixed-use building that are~~is~~ required for residential uses shall not be included as part of the land apportioned as commercial use.

    a. For mixed commercial/residential developments that meet the requirements above, the maximum residential density shall be twelve (12) units per net developable acre with additional density allowable through transfer of development rights as described in NCC 19.48. The residential density shall be

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calculated based upon the entire net developable area, including any commercial or mixed-use buildings within the development.

b. Any commercial portion of the project that is dedicated solely to the benefit of the residential development (i.e. lease office, exclusive gym, vending, etc.) shall not count toward the required 10% required minimum area.

c. All buildings with commercial uses shall be built to the standards in Nibley City Design Standards for Commercial and Institutional Uses except for Remodeled Residential Units as stated within this chapter.

~~C.~~d. All multi-family residential buildings which do not have a commercial use shall adhere to Multifamily Housing Architectural Design Standards of NCC 19.12.040(I).

~~D.~~F. Space Requirements:

	Single-Family Home	Multi-Family Housing
Minimum Lot Size (sq. ft.)	4,500	-
Maximum Height	40'	50'(40')[2]
Minimum Footage	50'	-
Front Yard	20'(15')[3]	20'(15')[3]
Front Porches	10'	10'
Side Yard	5'	10'

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Side Yard Porches, Deck Overhangs	5'	5'
Side Yard Adjacent to Streets	20'(15')[3]	20'(15')[3]
Rear Yard	15'(20')[4]	15'(20')[4]
Maximum Height	40'	

Accessory-Use Setbacks	Single-Family Home	Multi-Family Housing
Front Yard	20'	20'
Side Yard	3'	3'
Side Yard Street	20'	20'
Rear Yard	1'	1'
Maximum Height	15'	15'

1. Setback and frontage requirements shall apply to each building, and not each dwelling unit.
2. If located within 300 feet of an existing R-E, R-1, R-1A, R-2, R-2A zone or an existing single-family home, maximum building height is 40 feet.

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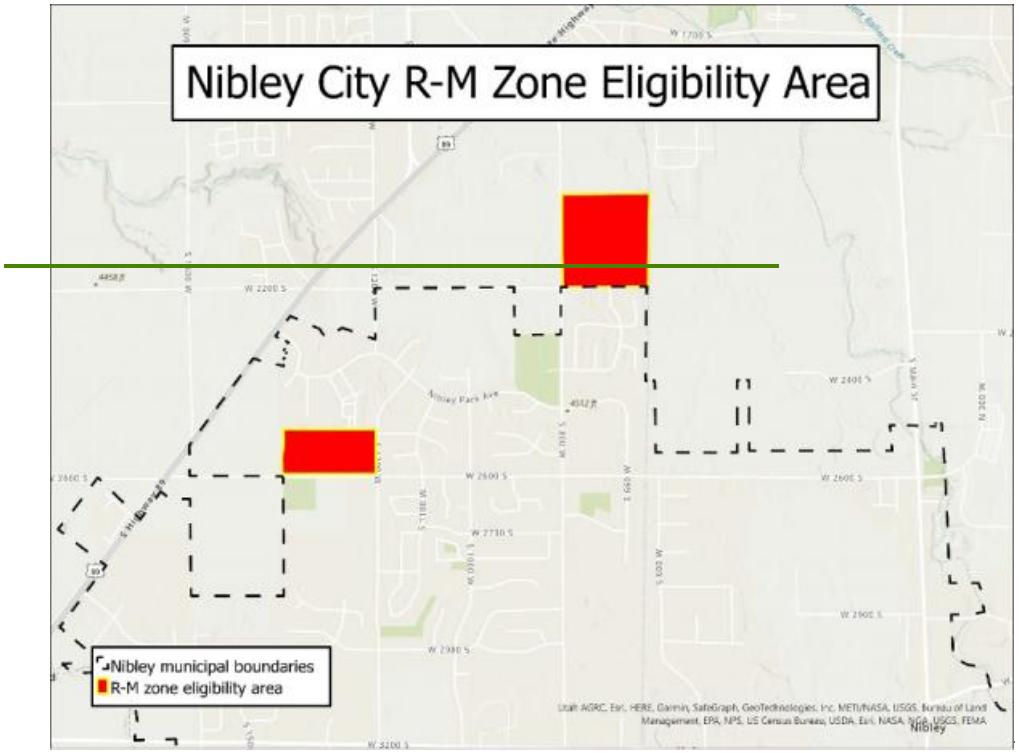
3. If housing unit is rear loaded, front yard and sideyard, street setback is reduced to 15’

~~1.~~4. If housing unit is rear loaded, rear yard setback is 20’.

~~E.~~G. Animal And Fowl Unit Regulations: See NCC 19.34.

~~F. R-M Application Map~~

~~An R-M Zone designation shall only be applied for in the following areas which includes parcels with Tax ID numbers 03-227-0003, 03-001-0013 and 03-001-0010, as of August 1, 2024.~~



~~G.~~H. Density Regulation

1. The maximum density of a residential development within the R-M zone shall be 10 units per net developable acre.

2. ~~A proposed~~ Proposed Multi-family housing ~~development adjacent to~~ within 300 feet of existing single-family homes ~~must place single family homes adjacent to the established single-family homes~~is limited to two stories in height and no more than 100 feet in building length unless otherwise buffered by an arterial roadway or 300-foot width of open space including a landscaped Buffer as defined within this chapter.

3. The City may approve single family homes that do not meet the required setbacks and lot size, i.e. patio homes. These homes shall be considered 'multi-family housing' and shall assume the associated open space requirements of such.

~~H.~~I. Open Space Amenities

1. Each residential development within an R-M zone shall provide the following types and amounts of open space and amenities:

Minimum Open	
Dwelling Type	Percentage of Net Developable Acres Required to be Used for Amenities and Open Space
Single-Family	20%
Multi-Family or Mix of Single Family and Multi-Family	35%

2.

Minimum Amenity							

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Number of Units	Park Area	Public Restroom	Pavilion	Swing Set	Playground	~~Clubhouse, Pool, or Splashpad~~	Sport Court/ Fields
Less Than 100	1.5 Acres	-	-	-	1	~~-~~	-
100-150	2.5 Acres	-	-	1	1	~~-~~	-
151-200	3.5 Acres	-	-	1	2	~~-~~	1
201-250	4.5 Acres	1	1	1	2	~~-~~	1
251-300	5.5 Acres	1	1	1	2	~~1 of the above options~~	1
301-400	6.5 Acres	1	2	2	3	~~2 of the above options (At least one pool or Splashpad)~~	
401-500	7.5 Acres	2	2	2	3	~~2 of the above options (At least one pool or Splashpad)~~	2
501+	*	*	*	*	*	~~*~~	*

a. This chart does not include all potential amenities. The applicant may apply for other amenities that would benefit the development and are in support of Nibley City's Parks and Recreation goals. Any proposed amenities not listed, must be approved by the City Council. The City Council may also allow a substitution of amenities on the table above. These substitutions may only be approved if the cost, value and use of the amenity matches or is greater than the required amenity. The burden shall be on the

developer to provide justification and is subject to review and acceptance by staff prior to Council consideration. An applicant may include additional amenities beyond the requirements of this section.

b. Development over 500 units must supply adequate and proportional amenities based on the table above.

c. Development may be phased according to NCC 21.02.080 and the Development Agreement. The City Council may extend phasing deadlines within the development agreement based on the size of the project and proposed amenities. Public, Common or Owners' Association-owned amenities shall be fully developed and operational in conjunction with each phase of the subdivision as a percentage of the total developed value of the subdivision (for example, if 25% of the dollar value of the development is being constructed, then a minimum of 25% of the dollar value of the built-out amenities must be developed). The determination of value, construction sequencing, and acceptance criteria shall be specified in the Development Agreement. An applicant may also provide an escrow or bond for improvements according to Nibley City Standards. Until improvements are accepted by the City for the attendant phase, no permits shall be issued for subsequent phases. Density Regulations

d. All amenities designed and designated to be transferred to City ownership and maintenance must meet Nibley City Design Standards. The City must review and approve any improvements that will be owned and maintained by the City as part of the construction drawing review.

e. Public and Private Park space may be combined or spread throughout the development. Each Park shall be a minimum of .25 acres. Each dwelling unit shall be within a quarter mile of a park within the development, unless otherwise approved by the City Council. Parks may be public or private. Each public park development and placement within an R-M development shall be agreed upon by the applicant and the City Council. Park space may not include alleyways, back yards, gangways, front yards, forecourts, private patios, porches, driveways, etc.; unless proper amenities and access are provided.

f. All amenities shall meet any federal, state, city, or other standards that apply.

g. Sports Courts/Fields: include a facility/amenity that is built for one of the following: Tennis Court, Pickleball Court, Basketball Courts, Soccer field, Volleyball pit, Baseball field, Softball field, wallball, golf course, disc golf course, or others as approved by the City Council.

h. Picnic Area: Two or more picnic tables for use by 10 or more persons.

i. Pavilion: A covered picnic area. Each Pavilion must be designed for use of a minimum ten or more people.

~~j. Club House: A building available to community members to house a club or social organization not conducted for private profit. Club Houses shall be owned and maintained by a homeowner's association. A club house shall be at least 1000 sq. ft. in size.~~

~~k.~~j. Playground: an area provided for children to play on. Each Playground must be designed for children twelve and younger. A playground must include features to appeal to children within the above age group including some of the following: slides, monkey bars, ladders, tunnels, climbers, bridges, ramps, platforms, etc. All playground equipment must be of commercial grade. Each playground must include a minimum of 8 features.

~~l. Pool: A recreation facility designed and intended for water contact activities. No pool shall be less than 800 sq. ft.~~

~~m.~~k. Public Restroom: a room or small building with toilets and sinks that is available for use by the general public. One (1) public restroom shall contain at minimum 2 individual rooms with toilets and sinks (male/female or unisex). Larger restroom facilities may be required depending on the amount of activity projected at a particular open space/park area. All restroom facilities shall be built in compliance with the Americans with Disabilities Act (ADA).

~~Splashpad: A recreation facility with sprinklers, fountains, nozzles and other devices or structures that spray water. Splashpads shall contain some above ground features.~~

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3. Fee in-lieu of Open Space and Amenity Requirements

a. For developments that are within ½ mile of a dedicated or master-planned City Park which is two (2) acres or greater, as identified in the Nibley City Parks, Recreation and Open Space Master Plan, a developer may pay a fee in-lieu of amenities and open space required. The fee in-lieu of amenities shall be based upon the estimated cost to construct the required amenity. The fee in-lieu of open space required shall be based upon the acreage of the open space that is not provided and shall be set by the Consolidated Fee Schedule, adopted by the City Council.

b. In no case shall open space within a development that includes multi-family housing be provided at a rate that is less than 10% of the net developable acreage.

c. All fees in-lieu of open space and amenity required shall supplement the improvement and maintenance of parks and recreation facilities in Nibley City.

~~n.~~d. If the developer pays a fee-in-lieu of open space requirements, the developer may develop the commensurate additional number of housing units that the fee-in-lieu offsets. For example, if the developer pays a fee-in-lieu for one (1) acre of required open space, the development is allowed up to ten (10) additional housing units or additional density if utilizing transfer of development rights (TDR), in accordance with NCC 19.48.

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~~3.~~4. Maintenance of Amenities

a. All R-M developments must establish and maintain in perpetuity by the property owner or an Owners Association if there are open space and amenity under common ownership, or as otherwise required by federal, state or Nibley City law. The Developer shall be a member of said Owners Association while the subdivision is being developed.

b. Costs: Unless otherwise agreed to by the City, at the City's discretion and on such terms and conditions as the City may agree to, the cost and responsibility of maintaining amenities shall be borne by the fee owner of the property or Owners Association.

c. Preliminary Maintenance Plan: A Preliminary Maintenance Plan shall be submitted with the preliminary plat or concept site plan for proposed maintenance of amenities within the development. This plan shall outline the following:

    1) The proposed ownership and responsibility for maintenance of the amenities;

    2) The proposed use of the amenities' and how each parcel of amenities meets the standards listed in this Chapter;

    3) The size of each amenities parcel; and

    4) The proposed concept plan for landscaping of the amenities.

d. Final Maintenance Plan: The developer shall submit a plan outlining maintenance and operations of the amenities and providing for and addressing the means for the permanent maintenance of the amenities within the proposed R-M application for the subdivision or development. The developer shall provide a final maintenance plan with the final plat or site plan and the plan shall contain the following:

    1) Documents and plans as listed in for the Preliminary Maintenance Plan.

    2) A description of the use of the amenities and how that use complies with this Chapter;

    3) The establishment of necessary regular and periodic operation and maintenance responsibilities for the various kinds of amenities (e.g., lawns, playing fields, meadow, pasture, wetlands, stream corridors, hillsides, clubhouse, pool, woodlands, etc.) and any private streets and other accesses;

    4) The estimated staffing needs, insurance requirements, and associated costs.

    5) The landscaping plans for parcels that will be owned by an Owners Association or by the City.

e. Approval: The Final Maintenance Plan must be approved by the Administrative Land Use Authority for a Subdivision application or the specified approval authority for a site plan review application, prior to or concurrent with final plat approval for the subdivision. The Final Maintenance Plan shall be recorded

against the property within the subdivision before any property or lots are sold or transferred and shall include provisions for the City's corrective action rights as set forth herein. Any changes or amendments to the Final Maintenance Plan must be approved by the Administrative Land Use Authority for a Subdivision application or the specified approval authority for a site plan review application. .

f. The developer shall offer an approved letter of credit, bond or escrow for all proposed improvements as set forth in NCC 21.14.

g. Failure to Maintain: The City may assume responsibility for the maintenance and operation of any portion of any amenity or common facility within an R-M development in the event the party responsible for maintaining or operating the amenity fails to do so in accordance with the terms of this Ordinance, the approved Maintenance Agreement, any Conditional Use Permits, Business Licenses or any other agreements between the City and the developer, owners, or other parties responsible for maintaining or operating amenities. If the City assumes responsibility under this paragraph, any remaining development escrow or bond funds may be forfeited, costs, fees, and liens for maintenance costs shall be assessed as described herein, and any permits, licenses or operating agreements may be revoked or suspended by the City in the City's sole discretion. Owners shall not impede the City in its efforts to maintain the amenities.

h. Corrective Action: The City may enter onto any amenity provided as part of an R-M development and take such corrective action, including extended maintenance, repairs, modifications, or the execution of additional agreements, as the City determines is necessary for the amenity to satisfy the terms of this Ordinance, the approved Maintenance Agreement, any Conditional Use Permits, Business Licenses or any other agreements between the City and the developer, owners, or other parties responsible for maintaining or operating amenities. The costs of such corrective action shall be charged to the owners and may include administrative costs, legal costs, and penalties. Such costs shall become a lien on said properties. Notice of such lien shall be filed by the City in the county recorder's office. The maintenance plan and all other documents creating or establishing any Association or conservation organization for

the property shall reference the City's corrective action authority set forth herein and shall be recorded against the property before any property or lots are sold or transferred.

i. Implementation and Maintenance: The developer of the subdivision shall fund implementation and maintenance of the amenities until such time as the control of the amenity is transferred to the owner listed in the maintenance plan. The developer shall address the implementation, development, maintenance and transfer procedures in the sensitive area designation plan map or master development plan, as applicable.

j. Maintenance Access: The developer of the subdivision shall provide sufficient maintenance access from a dedicated right-of-way to all amenities and constrained and sensitive lands within the R-M DEVELOPMENT to allow the owner of the property to have sufficient access.

~~I.~~J. Multifamily Housing Architectural Design Standards

1. General Design Concepts. New development shall be designed for its specific context within Nibley City. Developments shall possess a similar design theme, and the site shall be designed such that the overall development is cohesive. Building architecture, exterior materials, and colors shall coordinate.
2. All facades shall include architectural treatments to provide visual interest and to differentiate individual units. These design standards shall be applicable to all sides of a building, with each façade (front, rear, and side) being required to meet the terms of this Section.
3. Building Materials. The majority of each façade (51% or more of the wall area excluding windows and doors) shall be constructed of the following hard surface building materials: brick, stone, stucco, treated or split face decorative block (CMU), fiber cement siding, concrete, composite siding, vinyl siding with a minimum of 40-year warranty, or other durable building material as approved by the City Council. EIFS or untreated concrete block (CMU) may be allowed as an accent or secondary material only. The Planning Commission may approve metal as an exterior building material and as a primary material on a case-by-case basis if an applicant can show that the type of metal is of a high grade and provides architectural quality to a building.

4. Vertical Separation. Buildings in excess of one (1) story in height shall exhibit architectural detailing that establishes a vertical separation between lower and upper stories. This may be accomplished by a mid-façade cornice or trim, a change in material, style or color, a façade step-back or roof pitch with dormer windows, or other methods

5. Building Entrances. Building entrances shall have porches and shall be oriented toward the street or an open space area and provide connecting pedestrian access between the street, parking or open space areas.

6. Variation. Multi-family housing shall be designed with architectural wall variations spaced at intervals of thirty (30) to fifty (50) feet in linear width, depending on the size of the building. The following architectural features shall be incorporated into the design of the building:

    a. Change in building materials;

    b. Building projections measuring at least twelve (12) inches in depth based on the scale of the proposed building;

    c. Awnings and lighting, or another architectural variation as approved on a case-by- case basis that creates visual interest.

7. Garages and Parking Orientation.

    a. Multi-family housing, including townhomes, condominiums and apartments, shall be designed oriented toward exterior public roads with rear loading garages or parking accessed by a paved parking area or alleyway, except along Highway 165 and 89/91, as approved. Rear loading garages are ~~highly encouraged~~required for buildings located on interior ~~project~~ public roads with units oriented toward a ~~road~~ public street, trail or common courtyard area~~.~~ Front loading garages that face a public street~~may be~~ are not allowed for multi-family buildings~~ that do not have any portion of the building adjacent to a current or planned public road or street outside of the development~~.

Commented [LR1]: The entrances

Commented [LR2]: Consider allowing front-loaded garages, but requiring spacing between driveways to encourage shared access.

Commented [LR3]: Consider applying this standard to all housing types.

~~7.~~b. For single-family housing, front loading garages are allowed on interior public roads. Driveway access is limited to one driveway access each eighty (80) feet of frontage. For lots that are narrower than eighty (80) feet wide, shared driveway access or rear-loaded access is required. Residential driveway width is limited to twenty-four (24) feet wide, whether for shared or single access to single-family housing.

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~~J.~~K. Site Design Standards.

1. Natural features. R-M developments shall respect and maintain natural features such as existing trees, hills, drainages, wetlands, bodies of water, or other natural features or constrained and sensitive land. The City may require the developer to identify, delineate, and describe how the development will appropriately address and obtain any required authorizations related to such features.
2. A landscaping plan for the front yards shall be included. The landscaping plan shall include at least one (1) tree for every dwelling unit, and two (2) shrub of five (1) gallon size for each dwelling units. Coniferous trees shall be at least six (6) feet in height and the deciduous trees shall be at least one and a half (1.5) inches in caliper.

~~K.~~L. Connectivity. R-M developments shall provide connectivity with the surrounding area and throughout the development. All improvements shall consider vehicle, bicycle, and pedestrian access.

1. Street Design: All street designs shall comply with the General Plan and Transportation Master Plan including Nibley City's street standards and connectivity requirements. Each development shall provide at least two working access points that provide access to an existing street right-of-way. Additional access points may be required in order to facilitate an adequate and convenient circulation system within the City. Such additional access points will be located where they will implement the City's Transportation Master Plan, connect to existing street rights of way, or provide access for the logical development of adjacent, undeveloped properties.
2. All streets are encouraged to incorporate traffic calming and beautification methods as listed in Nibley City design standards and Transportation Master Plan. This included islands, bulb-outs, roundabouts, etc. Each traffic calming measure shall be approved by the City Engineer.

3. All Streets shall be dedicated public streets built to Nibley City Code and standards. Private drives shall only be built to access parking courts or garages that are located directly behind each unit.
4. Private Drives/Alleyways provide vehicular access to parking and dwelling units but do not provide primary pedestrian access to units. Private Drives are intended to be used primarily for vehicular circulation and dwelling access and should be visually distinct from streets.
    a. Private drives shall be a minimum width of 20 ft.
    b. All private drives shall be perpendicular, within 10 degrees, to the street they connect to.
    c. Driveways that access a single dwelling unit are not considered private drives or an alleyway
    d. The maintenance of all private drives, including snow clearing, shall be addressed as part of the maintenance plan
5. Developments shall provide a pedestrian access to the development border at intervals at a minimum of 660 feet unless expressly prohibited by conflicting with previously developed subdivisions or land use as determined by the land use authority. These access points shall be aligned with other trail systems, street right-of-way, or amenities and shall match the layout and size of the connection. A connection shall contain a minimum of eight ft (8') trail or sidewalks on public streets that meet Nibley City standards.
6. No dwelling units in an R-M development shall have driveway access to any arterial roadway as listed in Nibley's Transportation Master Plan. Multi-family housing units may face and have frontage along arterial roadways but must have rear loading garages. Public and private parks, open space or Buffering as defined within this chapter may also be along arterial roads.

~~L.~~M. Pedestrian circulation. R-M development shall provide a circulation map and show the following improvements to for pedestrian circulation and safety.

1. Pedestrian walkways that interconnect the adjacent street(s), amenities, parking areas, building entries, adjacent sites and adjacent master planned trails where applicable. Each building located along a public road must provide a sidewalk connection from the building entrance to the public sidewalk.
2. Walkways shall be hard surfaced with concrete.
3. Crosswalks shall be placed where pedestrian walkways cross streets and internal roads and shall be painted or made of concrete.
    a. The development shall provide connections to the Nibley City trail system. These trails must be dedicated to the City and built to Nibley City standards as listed in the Trails Master Plan and Nibley City Design Standards.

~~M.~~N. Parking: Multi-family housing shall provide 2 primary parking spaces for each unit with 2 or more bedrooms and 1.5 spaces for 1 bedroom or studio units. Primary parking must be contained in a garage, carports, driveway, or parking court. An R-M development shall provide one guest parking spot for every three units. Guest parking may be provided in parking courts or lots maintained by the property owner or owner association.

1. Individual parking courts or lots shall include landscaping with grass, trees or xeriscape plants separating parking areas of no more than 20 parking spaces Each parking area of 20 or less spaces shall be physically and visually separated by a landscape area a minimum of 10 feet in width.
2. Parking courts or lots shall be located in the interior of the development and located between or in the rear of buildings for multi-family developments.
3. Parking Courts or lots shall be paved and built to Nibley City parking lot standards.
4. Interior parking structures or garages are encouraged and shall meet Nibley City Design Standards

~~N.~~O. Landscaping: All portions of the lot not improved with structures or other impervious surfaces shall be maintained with suitable landscaping of plants, trees, shrubs, grasses, or similar landscaping materials.

1. Landscaping shall also be installed in all park strips to the same standards as other onsite landscaping. Asphalt, concrete, bricks, pavers, railroad ties, and other nonvegetative material are not allowed in the park strip area between the curb and sidewalk. Xeriscaping is permitted. The developer should plant street trees of an approved species and size along all streets. Trees should be planted at intervals of every 50 feet and must meet Nibley City Standards.
2. Buffering: R-M developments shall provide buffering along Highway 89/91 or Highway 165, or along the boundary of an R-M development that is adjacent to commercial, or industrial zones. Buffering landscaping is not required if commercial or industrial zones are separated by a public street from the R-M development. Buffering shall meet the standards within this ordinance.
3. Natural Landscape: All open space land dedicated to natural use must maintain its natural landscaping and plant life.

~~O.~~P. Fences:

1. Permitted Fences: Dwelling units are allowed to install and construct fences in compliance with NCC 19.24.090. Vinyl fences are only permitted in an R-M development for the purpose to mark property lines of individual dwelling units.
2. Fencing to mark the boundary of the development or amenities must meet the following standards:
    a. Opaque fences or walls must only be 4 feet tall. Any fencing above 4 feet must be at a minimum 80% transparent.
    b. Fencing and walls must be constructed out of concrete, bricks, rock, or metal bars. Chain link fences are prohibited and vinyl fences are prohibited unless used to mark the property boundary of the dwelling unit. Wood may only be used in a rail or agricultural-type fencing. Other materials may be approved by the Planning Commission based on the longevity of the material and if the material will aesthetically enhance the property. Walls and fencing shall also comply with NCC 19.24.090 and other fencing setback requirements as contained within Nibley City Code.

~~P.~~Q. Approval Process

1. Subdivisions within the R-M zone must complete the approval process of NCC 21.06 to ensure compliance with this section. All multifamily development that does not require a subdivision must complete the Site Plan Review Process of NCC 19.14.050.

19.32.050 Open Space Amenities

A. Each R-PUD shall provide the following types and amounts of open space and amenities:

Minimum Open Space Requirement	
Dwelling Type	**Percentage of Net Developable Acres Required to be Used for Amenities and Open Space**
Single Family	20%
A Mix of Single Family, Townhomes and Condominiums	35 %

Minimum Amenity

Number of Units	Park Area	Public Restroom	Pavilion	Swing Set	Playground	~~Clubhouse, Pool~~ ~~or Splashpad~~
Less Than 100	1.5 Acres	-	-	-	1	~~-~~
100-150	2.5 Acres	-	-	1	1	~~-~~
151-200	3.5 Acres	-	-	1	2	~~-~~
201-250	4.5 Acres	1	1	1	2	~~-~~
251-300	5.5 Acres	1	1	1	2	~~1 of the above options~~
301-400	6.5 Acres	1	2	2	3	~~2 of the above options~~ ~~(At least one pool or Splashpad)~~
401-500	7.5 Acres	2	2	2	3	~~2 of the above options~~ ~~(At least one pool or Splashpad)~~
501+	*	*	*	*	*	~~*~~

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1. This chart does not include all potential amenities. The applicant may apply for other amenities that would benefit the R-PUD and are in support of Nibley City's Parks and Recreation goals. Any proposed amenities not listed, must be approved by the City Council. The City Council may also allow a substitution of amenities on the table above. These substitutions may only be approved if the cost, value and use of the amenity matches or is greater than the required amenity. The burden shall be on the developer to provide justification and is subject to

review and acceptance by staff prior to Council consideration. An applicant may include additional amenities beyond the requirements of this section.

2. Development over 500 units must supply adequate and proportional amenities based on the table above.
3. Development may be phased according to NCC 21.02.080 and the Development Agreement. The City Council may extend phasing deadlines within the development agreement based on the size of the project and proposed amenities. Public and Owners' Association-owned amenities shall be fully developed and operational in conjunction with each phase of the subdivision as a percentage of the total developed value of the subdivision (for example, if 25% of the dollar value of the development is being constructed, then a minimum of 25% of the dollar value of the built-out amenities must be developed). The determination of value, construction sequencing, and acceptance criteria shall be specified in the Development Agreement. An applicant may also provide an escrow or bond for improvements according to Nibley City Standards. Until improvements are accepted by the City for the attendant phase, no permits shall be issued for subsequent phases.
4. All amenities designed and designated to be transferred to City ownership and maintenance must meet Nibley City Design Standards. The City must review and approve any improvements that will be owned and maintained by the City as part of the construction drawing review.
5. Public and Private Park space may be combined or spread throughout the development. Each Park shall be a minimum of .25 acres. Each dwelling unit shall be within a quarter mile of a park within the development, unless otherwise approved by the City Council. Parks may be public or private. Each public park development and placement within an R-PUD shall be agreed upon by the applicant and the City Council. Park space may not include alleyways, back yards, gangways, front yards, forecourts, private patios, porches, driveways, etc.; unless proper amenities and access are provided.
6. All amenities shall meet any federal, state, city, or other standards that apply.

7. Sports Courts/Fields: include a facility/amenity that is built for one of the following: Tennis Court, Pickleball Court, Basketball Courts, Soccer field, Volleyball pit, Baseball field, Softball field, wallball, golf course, disc golf course, or others as approved by the City Council.
8. Picnic Area: Two or more picnic tables for use by 10 or more persons.
9. Pavilion: A covered picnic area. Each Pavilion must be designed for use of a minimum ten or more people.
10. ~~Club House: A building available to community members to house a club or social organization not conducted for private profit. Club Houses shall be owned and maintained by a homeowner's association. A club house shall be at least 1000 sq. ft. in size.~~
11. ~~11.~~10. Playground: an area provided for children to play on. Each Playground must be designed for children twelve and younger. A playground must include features to appeal to children within the above age group including some of the following: slides, monkey bars, ladders, tunnels, climbers, bridges, ramps, platforms, etc. All playground equipment must be of commercial grade. Each playground must include a minimum of 8 features.
12. ~~Pool: A recreation facility designed and intended for water contact activities that serves an R-PUD. No pool shall be less than 800 sq. ft.~~
13. ~~13.~~11. Public Restroom: a room or small building with toilets and sinks that is available for use by the general public. One (1) public restroom shall contain at minimum 2 individual rooms with toilets and sinks (male/female or unisex). Larger restroom facilities may be required depending on the amount of activity projected at a particular open space/park area. All restroom facilities shall be built in compliance with the Americans with Disabilities Act (ADA).
14. ~~14.~~12. ~~Splashpad: A recreation facility with sprinklers, fountains, nozzles and other devices or structures that spray water. Splashpads shall contain some above ground features.~~

B. Maintenance of Amenities

1. All R-PUDs must establish and maintain in perpetuity an Owners Association if there are open space and amenity under common ownership, or as otherwise required by federal, state or Nibley City law. The Developer shall be a member of said Owners Association while the subdivision is being developed.
2. Costs: Unless otherwise agreed to by the City, the cost and responsibility of maintaining amenities shall be borne by the fee owner of the property that is part of the R-PUD or Owners Association.
3. Preliminary Maintenance Plan: A Preliminary Maintenance Plan shall be submitted with the preliminary plat for proposed maintenance of amenities within the development. This plan shall outline the following:
    a. The proposed ownership and responsibility for maintenance of the amenities;
    b. The proposed use of the amenities' and how each parcel of amenities meets the standards listed in this Chapter;
    c. The size of each amenities parcel; and
    d. The proposed concept plan for landscaping of the amenities.
4. Final Maintenance Plan: The developer shall submit a plan outlining maintenance and operations of the amenities and providing for and addressing the means for the permanent maintenance of the amenities within the proposed R-PUD application for the subdivision. The developer shall provide a final maintenance plan with the final plat and the plan shall contain the following:
    a. Documents and plans as listed in for the Preliminary Maintenance Plan.
    b. A description of the use of the amenities and how that use complies with this Chapter;
    c. The establishment of necessary regular and periodic operation and maintenance responsibilities for the various kinds of amenities (e.g., lawns, playing fields, meadow, pasture, wetlands, stream corridors, hillsides, clubhouse, pool, woodlands, etc.);
    d. The estimated staffing needs, insurance requirements, and associated costs.

e. The landscaping plans for parcels that will be owned by an Owners Association or by the City.

5. Approval: The Final Maintenance Plan must be approved by the Administrative Land Use Authority prior to or concurrent with final plat approval for the subdivision. The Final Maintenance Plan shall be recorded against the property within the subdivision before any property or lots are sold or transferred and shall include provisions for the City's corrective action rights as set forth herein. Any changes or amendments to the Final Maintenance Plan must be approved by the Administrative Land Use Authority.
6. The developer shall offer an approved letter of credit, bond or escrow for all proposed improvements as set forth in NCC 21.14.
7. Failure to Maintain: The City may assume responsibility for the maintenance and operation of any portion of any amenity or common facility within an R-PUD in the event the party responsible for maintaining or operating the amenity fails to do so in accordance with the terms of this Ordinance, the approved Maintenance Agreement, any Conditional Use Permits, Business Licenses or any other agreements between the City and the developer, owners, or other parties responsible for maintaining or operating amenities. If the City assumes responsibility under this paragraph, any remaining development escrow or bond funds may be forfeited, costs, fees, and liens for maintenance costs shall be assessed as described herein, and any permits, licenses or operating agreements may be revoked or suspended by the City in the City's sole discretion. Owners shall not impede the City in its efforts to maintain the amenities.
8. Corrective Action: The City may enter onto any amenity provided as part of an R-PUD and take such corrective action, including extended maintenance, repairs, modifications, or the execution of additional agreements, as the City determines is necessary for the amenity to satisfy the terms of this Ordinance, the approved Maintenance Agreement, any Conditional Use Permits, Business Licenses or any other agreements between the City and the developer, owners, or other parties responsible for maintaining or operating amenities. The costs of such corrective action shall be charged to the owners and may include administrative costs, legal costs, and penalties. Such costs shall become a lien on said properties. Notice of such lien shall be filed by the City in the county recorder's office. The maintenance plan and all other documents creating or establishing any Association or conservation

organization for the property shall reference the City's corrective action authority set forth herein and shall be recorded against the property before any property or lots are sold or transferred.

9. Implementation and Maintenance: The developer of the subdivision shall fund implementation and maintenance of the amenities until such time as the control of the amenity is transferred to the owner listed in the maintenance plan. The developer shall address the implementation, development, maintenance and transfer procedures in the sensitive area designation plan map or master development plan, as applicable.

10. Maintenance Access: The developer of the subdivision shall provide sufficient maintenance access from a dedicated right-of-way to all amenities and constrained and sensitive lands within the R-PUD to allow the owner of the property to have sufficient access.

C. Fee in-lieu of Open Space and Amenity Requirements

1. For developments that are within ½ mile of a dedicated or master-planned City Park which is two (2) acres or greater, as identified in the Nibley City Parks, Recreation and Open Space Master Plan, a developer may pay a fee in-lieu of amenities and open space required. The fee in-lieu of amenities shall be based upon the estimated cost to construct the required amenity. The fee in-lieu of open space required shall be based upon the acreage of the open space that is not provided and shall be set by the Consolidated Fee Schedule, adopted by the City Council.

2. In no case shall open space within a development that includes multi-family housing be provided at a rate that is less than 10% of the net developable acreage.

3. All fees in-lieu of open space and amenity required shall supplement the improvement and maintenance of parks and recreation facilities in Nibley City.

4. If the developer pays a fee-in-lieu of open space requirements, the developer may develop the commensurate additional number of housing units that the fee-in-lieu offsets. For example, if the developer pays a fee-in-lieu for one (1) acre of required open space, the development is allowed up to seven (7) additional housing units or additional density if utilizing transfer of development rights (TDR), in accordance with NCC 19.48.

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19.32.040 Area And Density Regulations

1. Minimum development size: The minimum total area for an R-PUD shall be 20~~40~~ acres
2. Housing Types: Only single-family homes and town homes are allowed in the R-PUD in residential areas, except as allowed in the Town-Center Area. The density shall be based on Net Developable Acres of the development as follows:
    1. Equal to or less than 7~~5~~ units per Net Developable Acre a. Single Family Home R-PUD must contain a minimum of 50 units.
    2. A Mix of Single Family and Townhomes: Equal to or less than 5 units per Net Developable Acre. Up to 60% of dwelling units can be townhomes. a. A Mix of Single Family and Townhomes R-PUD must contain a minimum of 120 units.
3. Town-Center: The area as marked on R-PUD Application Map in NCC 19.32.030 (B) as Town- Center Area shall have the following Housing Requirements.
    1. Single Family Home Development and Mix of Single Family and Townhome Development shall be governed by NCC 19.32.040 (A).
    2. A Mix of Single Family, Townhomes and Condominiums: Equal to or less than 7~~10~~ units per Net Developable Acre~~s~~. Up to 40% of the units can be condominiums, and a minimum of 40% of homes must be single family homes.
4. ~~A~~ Housing of a proposed R-PUD adjacent to existing single-family homes ~~must~~ is limited to two stories in height and no more than 100 feet in building length~~place single family homes adjacent to the established single-family homes~~ unless otherwise buffered by an arterial roadway or 300-foot width of open space including a landscaped Buffer as defined within this chapter.

5. The City may approve single family homes that do not meet the required setbacks and lot size, i.e. patio homes. These homes shall not be counted toward the single-family home requirements contained in this section and shall be counted toward the number of townhomes.

19.32.060 General Requirements

A. The R-PUD should be compatible with surrounding land uses, building types and physical features of the site. Specific requirements are included below:

B. Determination of Net Developable Land:

   1. In calculating what portion of the project is considered developable, areas designated as constrained and sensitive land may not be included in the project size.

   2. If the constrained and sensitive land, property along waterways or other natural landscapes may reasonably be turned into a publicly-accessible amenity, it may be re-included in the project size.

   3. Net Developable Land must comply with the definition within this chapter.

C. Site Development Standards: The following shall serve as the setback/site development standards for each proposed R-PUD.

	Single-Family Home	Townhome	Patio Home	Condo
Minimum Lot Size (sq. ft.)	4,500	_	_	_
Minimum Frontage	50'	_	_	_
Primary -Use Setbacks				

Front Yard	20'(15')[3]	20'(15')[3]	20'(15')[3]	30'(15')[3]
Front Porches	10'	10'	10'	10'
Side Yard	5'	10'	0'	10'
Side Yard Porches, Deck, Overhangs	5'	5'	0'	5'
Side Yard Adjacent to Streets	20'(15')[3]	20'(15')[3]	20'(15')[3]	25'(15')[3]
Rear Yard	15'(20')[4]	15'(20')[4]	15'(20')[4]	15'(20')[4]
Maximum Height	40'	40'	40'	40'

Accessory-Use Setbacks	Single-Family Home	Townhome	Patio Home	Condo
Front Yard	20'	20'	20'	20'
Side Yard	3'	3'	3'	3'
Side Yard Street	20'	20'	20'	20'
Rear Yard	1'	1'	1'	1'
Maximum Height	15'	15'	15'	15'

1. Setback and frontage requirements shall apply to each building, and not each dwelling unit

2. All other setbacks shall comply with Nibley City Code.

3. If housing unit is rear loaded, front yard and sideyard, street setback is reduced to 15'

~~2.~~4. If housing unit is rear loaded, rear yard setback is 20'.

5. All buildings and landscaping shall comply with NCC 19.24.110 Clear View of Intersecting Streets as amended.

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D. Signs: Any signs proposed for the development, other than traditional street signs, must conform to Nibley City Code.

E. All property developed as Townhomes or Condominiums, must be subject to covenants, conditions and restrictions and must be subject to and governed by an owner's associations in compliance with Utah Code Annotated Title 57.

   1. In addition, each owner's association must have a governing board made up of property owners within the R-PUD, but general administration and maintenance of the development may be handled with a property manager. Any R-PUD that contains townhome must have onsite management, outside professional management or onsite point of contact.

F. Amenities and Open Space: Maintenance and ownership of amenities and Open space may be provided for under one of the following options as approved by the City Council in the City Council's discretion. The City may require any Amenities or Open Space within the R-PUD to be dedicated to Nibley City in order to fulfill goals listed in the Parks, Trails, and Recreation and Open Space Master Plan, or to further public good and advance goals within the General Plan or other Master Plans of the Nibley City:

   1. Dedication of the land to Nibley City as a public park or parkway system; or

2. Granting to the city a permanent amenities easement on and over the said private amenities to guarantee that the amenities remain perpetually in recreation use, with ownership and maintenance being the responsibility of a homeowners' association established with articles of association and bylaws; or

3. Adoption of covenants, conditions, and restrictions and creation of an owners' association that provides for the payment of common expenses for the upkeep of common areas and facilities.

G. Bond: For each phase, the developer shall be required to provide guarantees as set forth in NCC 21.14.

H. Subsequent Subdivision: If the R-PUD is to be subsequently divided either as a subdivision into phase development parcels or separately owned and operated units, such division boundaries shall be indicated on the development plan and preliminary subdivision approval concurrently obtained in the case of a subdivision.

I. Subdivision Regulations: Any part of an R-PUD that is proposed as a subdivision is subject to the provisions of the subdivision title and the standards, conditions, and restrictions of the base zoning, unless superseded by the provisions of this ordinance.

19.32.080 Development Standards

Commented [LR4]: Only change sub-section A of this section. The remainder of the Development Standards remain the same.

These standards are intended to create R-PUD developments that will establish permanent neighborhoods and provide a sense of community. To meet the intent of this section, the following provisions shall be applied to all new multi-family residential and mixed-use developments. For exterior remodels, these standards shall be required. Commercial areas of an R-PUD must comply with Nibley City Commercial design standards for commercial developments.

A. Townhome, Patio Homes, and Condominium Architectural Standards

1. General Design Concepts. New development shall be designed for its specific context within Nibley City. Developments shall possess a similar design theme, and the site shall be designed such that the overall development is cohesive. Building architecture, exterior materials, and colors shall coordinate.

2. All facades shall include architectural treatments to provide visual interest and to differentiate individual units. These design standards shall be applicable to all sides of a building, with each façade (front, rear, and side) being required to meet the terms of this Section.
3. Building Materials. The majority of each façade (51% or more of the wall area excluding windows and doors) shall be constructed of the following hard surface building materials: brick, stone, stucco, treated or split face decorative block (CMU), fiber cement siding, concrete, composite siding, or other durable building material as approved by the City Council. EIFS or untreated concrete block (CMU) may be allowed as an accent or secondary material only. The Planning Commission may approve metal as an exterior building material and as a primary material on a case-by-case basis if an applicant can show that the type of metal is of a high grade and provides architectural quality to a building.
4. Vertical Separation. Buildings in excess of one (1) story in height shall exhibit architectural detailing that establishes a vertical separation between lower and upper stories. This may be accomplished by a mid-façade cornice or trim, a change in material, style or color, a façade step-back or roof pitch with dormer windows, or other methods.
5. Building Length: Building length shall not exceed 150 feet.
6. Building Entrances. Building entrances shall have porches and shall be oriented toward the street or an open space area and provide connecting pedestrian access between the street, parking or open space areas.
7. Variation. Townhome dwellings units shall be designed with architectural wall variations spaced at intervals of thirty (30) to fifty (50) feet in linear width, depending on the size of the building. The following architectural features shall be incorporated into the design of the building:
    1. Change in building materials;
    2. Building projections measuring at least twelve (12) inches in depth based on the scale of the proposed building;

3. Awnings and lighting, or another architectural variation as approved on a case-by- case basis that creates visual interest.

8. Garages. Townhomes shall be designed oriented toward exterior public roads with rear loading garages accessed by a paved parking area or alleyway, except along Highway 165 and 89/91 as approved. Rear loading garages are highly encouraged for townhomes located on interior project roads with units oriented toward a road or common courtyard area. Front loading garages may be allowed for townhomes that do not have any portion of the building adjacent to a current or planned public road or street outside of the development. Multiple unit structures shall have garages incorporated into the primary structure. At least fifty percent (50%) of units shall contain a two-car garage. Detached garages are prohibited in R-PUDs

19.20.030 Mixed Use

A. Any mix of permitted or conditional uses listed in this section is allowed within the same lot or parcel, whether within the same building or in a permitted accessory building, provided that all setbacks and other applicable standards of this Title are adhered to for each use. Buildings containing mixed uses shall comply with the most restrictive standard among the standards applicable to the uses within the building.

B. Within the Town Center Area, as described in NCC 19.32.030(B), housing is allowed within Commercial and Neighborhood Commercial Zones ~~when attached to a commercial building~~as part of a mixed use development. Within such developments, at least 50% of land must be dedicated to commercial uses. The 50% use may include the entirety of the ground floor area of buildings with commercial uses on the ground floor or horizontally separated uses where commercial uses occupy an entire building. For buildings with partial commercial uses on a floor or vertically separated uses, only the ground floor area of the portion dedicated to commercial uses may be counted. The portion of land that is apportioned as a commercial use shall include the ground floor area of commercial uses, as described above, and supportive uses, including parking and landscaping Parking, landscaping, and other supportive uses for a mixed-use building that are~~. Parking for a mixed-use building that is~~ required for residential uses shall not be included as part of the land apportioned as commercial use. The maximum residential density shall be ten (10) units per net developable acre with additional density allowable through transfer of development rights as described in NCC 19.48

Commented [LR5]: This would fix a conflict in this section.

The residential density shall be calculated based upon the entire net developable area, including any commercial or mixed-use buildings within the development. ~~The residential density shall be calculated based upon the area that is dedicated to residential uses, including any mixed-use buildings.~~

1. All buildings with commercial uses shall be built to the standards in Nibley City Design Standards for Commercial and Institutional Uses except for Remodeled Residential Units as stated within this chapter.

~~B.~~2. All multi-family residential buildings which do not have a commercial use shall adhere to Multifamily Housing Architectural Design Standards of NCC 19.12.040(I).

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19.48.030 Transfer Of Development Rights Receiving Overlay

C. Receiving Areas Identified.

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1. Receiving areas shall be designated on the official Zoning Map of Nibley City and shall function as overlay zones, such that all the provisions of the underlying zone shall apply, unless altered by the provisions of the overlay.
2. Where a property is partially contained within a Receiving Area, only the portion of the property contained within the Receiving Area may be used for the purposes of applying transferable development rights (TDRs).
3. A property owner may apply to have their property be designated as a Receiving Area and rezoned to receive the Transfer of Development Rights Receiving Overlay Zone through the City's rezoning process set forth in 19.02.
4. The City Council may designate additional areas as a Receiving Area through the City's rezoning process. The Zoning Map should be updated upon designation. For future receiving area designations, the Planning Commission and City Council, in accordance with City Code, shall consider the ability of the property, utilities, nearby roadway networks, transportation system capacities and options, and other land use characteristics to accommodate additional density on the property.

5. A receiving property that brings TDR credits to their property may only use the development rights permitted in accordance with the existing zoning regulations applicable to the receiving property and as shown in the table below:

Base Zone	Base Density	Receiving Area Allowable Density Increase
R-1, R-1A, R-2, R-2A Zones	As per zone	Up to 50% increase over the existing zone requirements
R-RUD eligible areas	~~5~~7 units per net developable acre	Up to 15 units per net developable acre
R-M eligible areas	10 units per net developable acre	Up to 20 units per net developable acre
Residential/Commercial mixed use Projects within C or C-N zones	As per existing zone	Up to 15 units per net developable acre

Commercial mixed use developments within a TDR receiving overlay zone and a Commercial or Neighborhood Commercial zone must include a minimum of 50% of land for commercial uses. The 50% use may include the entirety of the ground floor area of buildings with commercial uses on the ground floor or horizontally separated uses where commercial uses occupy an entire. For buildings with partial commercial uses on a floor or vertically separated uses, only the ground floor area of the portion dedicated to commercial uses may be counted. The portion of land that is apportioned as a commercial use shall

include the ground floor area of commercial uses, as described above, and supportive uses, including parking and landscaping. Parking for a mixed-use building that is required for residential uses shall not be included as part of the land apportioned as commercial use. The residential density shall be calculated based upon the area that is dedicated to residential uses, including any mixed-use buildings. Any residential uses along 4400 South or Highway 89/91 shall be setback at least 500 feet from each right-of-way. Properties designated as receiving areas and with proof of transferred development credits, as shown in City and County records, shall be vested in the density of the underlying zone plus the additional development credits up to the limits shown in "e" above. Properties designated as receiving areas that are within R-PUD or R-M eligible areas shall be vested in the density of the R-PUD or R-M zoning designation plus additional development credits up to the limits shown in "e" above. Transfer of Development Rights to Receiving Properties shall comply with the following:

1. Any proposed transfer of development rights may be initiated only upon completing an Eligibility application by the owners of the sending properties, holders of a TDR Certificate, or owners of the receiving properties.
2. Nibley City may not require property owners to transfer or receive a transfer of development rights as a condition of the development of any property, however no increases in density beyond what the existing zone allows shall be given without proof of transferrable development credits from a sending property.
3. The record owner of receiving property within the Transfer of Development Rights Receiving Overlay Zone shall file an application for a determination of eligibility to determine the number of transferrable residential development rights available to be transferred and affixed to one or more receiving properties in compliance with this ordinance. Such application shall include:
    1. A completed determination of eligibility application and TDR Certificate from the sending property.
    2. A tax map, plat or site plan outlining the boundaries of the property for each lot, tract or parcel as described in the deed.
    3. The existing zoning of the property.
    4. A title policy or other title documentation for the receiving property including a legal description of the receiving property.

5. A copy of a survey plat of the proposed receiving parcel prepared by a surveyor licensed in the State of Utah.
6. Water shares or rights necessary to support the new project as provided in NCC 21.12.020.
7. A statement of the number of residential development rights proposed to be transferred and affixed as residential development rights to one or more receiving properties, and calculations upon which the number is based.
8. All applicable fees.
9. A signed conservation easement agreement covering the sending property with a certified Land Trust, non-profit organization or Nibley City
10. Any additional information required by Nibley City, shown in the application, as necessary to determine the number of residential development rights that qualify for transfer.

4. The City shall provide a written statement of the maximum number of TDRs available to be transferred and affixed to one or more receiving properties.
5. A transfer of development rights occurs when the owner of the development rights records a Deed of Transfer against the receiving property in the land records of Cache County.
6. The Deed of Transfer shall be executed by the sending area property owners of the development rights being transferred, and any lien holders of such property owners, and shall identify the development rights being severed, and the sending properties and/or the receiving properties, as applicable.
7. No Deed of Transfer may be recorded among the land records of Cache County unless the Deed of Transfer contains a copy of the signed TDR Certificate by the City Planner indicating the number of residential development rights being transferred and/or affixed to one or more receiving properties.
8. Upon recordation of the Deed of Transfer, the transferable development rights are conveyed to one or more parties and/or are affixed to one or more receiving properties stated in the Deed of Transfer.

9. The Deed of Transfer shall be in a form substantially similar to the Deed of Transfer attached as exhibit "C" to this ordinance and shall otherwise comply with the requirements of this ordinance and any changes to the deed attached as an exhibit in a particular case shall be in a form that is approved by the Nibley City Attorney.

10. Any transfer of development rights to a receiving property pursuant to this ordinance only authorizes an increase in maximum residential density over the base density as per the table in "d" above.

11. The existing zoning district regulations may be reduced/modified in terms of the following table:

	R-M Eligible Areas	R-PUD Eligible Areas	R-1	R-1A	R-2	R-2A
Minimum lot area[1] (Single-family)[2]	4,500 sq. ft.	4,500 sq. ft.	14,000 sq. ft	12,000 sq. ft	10,000 sq. ft	6,000 sq. ft
Minimum lot width[3]	50'	50'	100'	80'	70'	65'
Minimum front yard setback (principal use)[4]	7'	7'	20'		12'	
Minimum garage front setback[5]	20'	20'	25'		22'	
Minimum side yard, interior setback	5'		10'		8'	

Minimum side yard, street setback	15'		20'	15'
Minimum rear yard setback[6]	10'		20'	15'
Parking	10% parking minimum reduction	10% parking minimum reduction		
Unit Types & Unit Split	Not applicable	A minimum of 20% percent of the units must be single-family detached. Remaining units may be flexible attached and/or multi-family units	Not applicable	
~~Minimum project size~~	~~Not applicable~~	~~20 acres~~		

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12.

[1] Lot bonus increase is only granted a maximum per table in 19.48.030 C 5 and it is expected that each development will have a variety of lot sizes and not all lots will be the minimum size.

[2] Two-family housing is permitted per Nibley City Code 19.20. Minimum lot size per two-family home is 9,000 sq. ft or minimum area per zone in TDR ordinance, whichever is greater.

[3] Lot width is measured at the front yard setback line.

[4] The building home setback includes the front of the home, living spaces, and porches, but not garages.

[5] The garage is intended to be setback further than the home.

[6] Minimum alley or rear loaded setbacks are 5' if garage is located on the rear and is accessed from the alley.

13. Developments in R-PUD eligible areas – housing types may include flexible attached units with building lengths no greater than 150'. Projects with bonified TDR credits, shall, when the application meets all City standards, be approved after appropriate administrative processing for a subdivision or conditional use.

14. Proposals for use of TDR credits within the R-PUD eligible areas as currently shown in NCC 19.32.030, shall become administrative and not require the rezone process in order to apply TDR credits to the project in order to allow for density which is greater than 50% greater than the underlying residential zoning designation. R-PUD projects shall follow the development standards and approval process of NCC 19.32, except as provided in this chapter.

21.10.020 Open Space Subdivision

M. Fee in-lieu of Open Space

1. For Open Space Subdivision developments that are within ½ mile of a dedicated or master-planned City Park which is two (2) acres or greater, as identified in the Nibley City Parks, Recreation and Open Space Master Plan, a developer may pay a fee in-lieu of amenities and open space required. The fee in-lieu of open space required shall be based upon the acreage of the open space that is not provided and shall be set by the Consolidated Fee Schedule, adopted by the City Council.

2. All fees in-lieu of open space shall supplement the improvement and maintenance of parks and recreation facilities in Nibley City.

3. If the developer pays a fee-in-lieu of open space requirements, the developer may develop the commensurate additional number of housing units that the fee-in-lieu offsets. For example, if the developer pays a fee-in-lieu of open space that is equal to 0.25 Open Space Ratio, an additional 0.25 Incentive Multiplier shall be allotted to the development, as noted in the Lot Standards Chart of this Section.

Commented [LR7]: Add this sub-section at the end of NCC 21.10.020.

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Agenda Item #7

Description	**Discussion and Consideration:** Resolution 25-23—Agreement with the State of Utah Department of Transportation, Active Transportation Cooperative Agreement, Accepting Ownership of Trail ROW and Responsibility of Maintenance (First Reading)
Presenter	Justin Maughan, City Manager
Staff Recommendation	Move to approve Resolution 25-23—Agreement with the State of Utah Department of Transportation, Active Transportation Cooperative Agreement, Accepting Ownership of Trail ROW and Responsibility of Maintenance for first reading
Reviewed By	Justin Maughan, City Manager

Background:

From Utah Trail Network website:

During the 2023 Utah legislative session the legislature passed SB 185. In that bill there is a provision that allocates $45 million in on-going funding and $45 million one-time funding to UDOT to build, operate, and maintain a paved regional trail network.

The vision is for UDOT to build and operate a network of paved trails throughout the state that connect Utahns of all ages and abilities to their destinations and communities. This network should be a comfortable and reliable option for those walking, biking or scooting. When built out, the network should create a regional trail spine, or backbone, with local facilities tying in wherever possible, making it seamless for someone to jump on for any distance they need.

Secondary benefits of this trail network include creating opportunities for people to be together outside. This trail network is called the Utah Trail Network or UTN. UDOT created a new Division, the Trails Division, to oversee this funding and implement the UTN program.

In 2024 during the first round of considered projects, the a connector trail along the Blacksmith Fork River from Ridgeline Highschool to the Blackhawk Soccer Complex in Logan was identified, and awarded $4M for construction. This is the only trail in the Region that was awarded any money.

The funding for the construction of the trail will come from UDOT, however, UDOT is not interested in maintaining or operating the trail, and are requiring the local Municipalities to agree to do so, before they will construct the trail. UDOT staff has begun to reach out

to the municipalities to have those discussions. Millville has indicated that they are not interested in agreeing to anything. Providence has expressed some support, with concerns of the wording in the agreement. Logan is supportive. Preliminary discussion with Mayor and Staff in Nibley, are supportive of not only accepting and maintaining the portion of the trail in Nibley but also accepting and maintaining the portion of the trail through Millville. Staff estimates that this will cost $5,000 to $10,000 annually to maintain the trail.

RESOLUTION 25-23

AGREEMENT WITH THE STATE OF UTAH DEPARTMENT OF TRANSPORTATION, ACTIVE TRANSPORTATION COOPERATIVE AGREEMENT, ACCEPTING OWNERSHIP OF TRAIL ROW AND RESPONSIBILITY OF MAINTENANCE

WHEREAS, Where as Nibley supports the creation of trails for a healthy active lifestyle; and

WHEREAS, UDOT is willing to fund the construction of the Blacksmith Fork River Trail, from Ridgeline Highschool to Blackhawk Soccer Complex; and

WHEREAS, a condition of the construction is that Nibley City take ownership and maintenance of the trail; and

WHEREAS, the trail extends beyond the jurisdiction of Nibley into Millville, Providence and Logan; and

WHEREAS, Millville has declined involvement in the project.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF NIBLEY CITY, STATE OF UTAH, AS FOLLOWS:

The attached Active Transportation Cooperative agreement attached hereto is approved and agreed to.

Dated this 10 day of July, 2025.

_____
Larry Jacobsen, Mayor

ATTEST

_____
Cheryl Bodily, City Recorder

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BLACKSMITH FORK TRAIL FEASIBILITY STUDY

MAY 2024

THE TRAILS CACHE

CIVIL SOLUTIONS GROUP

Blacksmith Fork Trail Feasibility Study

INTRODUCTION

The Cache County Corporation contracted with Civil Solutions Group, Inc. (CSG) to prepare this study to determine the feasibility of constructing a shared-use trail approximating the route of the Blacksmith Fork River (BSF River) from Ridgeline High School (RHS) in Millville to Blackhawk Park in Logan. This trail would play a key role in connecting RHS (a major activity center and pedestrian/bicyclist trip generator) to the wider County trail network, while also providing a safe and scenic route separate from major vehicular thoroughfares. Other connections would one day further link this trail east to the Bonneville Shoreline Trail and west to the Logan River Trail System.

GOALS FOR THE FEASIBILITY STUDY

The goals for the Feasibility Study included:

- Identify the willingness of existing property owners along the BSF River corridor to cooperate in right-of-way (ROW) acquisition for the trail
- Determine a preferred alignment for the trail
- Develop design standards for the trail
- Evaluate existing conditions along the trail corridor
- Evaluate proposed crossing options at State Road 165 (SR-165) in Nibley, the BSF River in Millville and 1700 South in Logan for cost, safety, and engineering feasibility
- Estimate project cost to be used in funding applications
- Initiate conversations with relevant government agencies regarding strategies for long-term maintenance of the facility.

PRIVATE PROPERTY OWNER INVOLVEMENT

The first step in determining the preferred alignment was to determine the willingness of affected property owners to participate. The private landowners owning parcels through which the trail could connect its designated beginning to its terminus were contacted by CSG to discuss their willingness to participate.

ALLAN & SUSAN VAIL TRUST (Parcels #03-004-0005 & 03-004-0027)

Michael Taylor, PE with CSG, appeared in person at the Vail household in February of 2024 to discuss their willingness to participate in running the trail along the east river bank through their property. Allan and Susan Vail invited Mr. Taylor into their home where the objectives for the trail were discussed. The couple expressed their concern about how narrow their property was between the highway ROW and the river, and that ceding an additional linear corridor along the river could impact their parcel's use, citing their recent inability to construct

a needed outbuilding due to setback constraints. Further concerns were expressed regarding visibility, safety and the possibility of theft and/or vandalism to their property. Ultimately the Vails stated that they would not be willing to entertain a government purchase of any of their land in fee or the purchase of an access easement across their land.

H. J. FUHRIMAN, LLC (Parcels #03-004-0001, 03-004-0002, 03-002-0010 & 03-002-0012)

CSG spoke with H. J. "Joe" Fuhriman in February 2024. After discussing the objectives for the trail, Mr. Fuhriman expressed his concern about the operational challenges to his agricultural operation posed by public access. Concerns about vandalism, as well as the liability to which he may be exposed from trespassers inclined him to doubt his interest in participation. Mr. Fuhriman did say that he would discuss the issue with his family and get back to us. However, on a follow-up phone call, he stated his firm opposition to the project.

STOKES NATURE CENTER (Parcel #03-004-0011)

In 2023, Cache County officials discussed with representatives from Stokes Nature Center who was open to the trail traversing their property as long as fencing or other appropriate barriers would separate pedestrians from critical habitat areas within their preserve. However, without participation from the Fuhriman or Vail families, the parcel only serves as a dead-end and would not be of any benefit to the trail corridor.

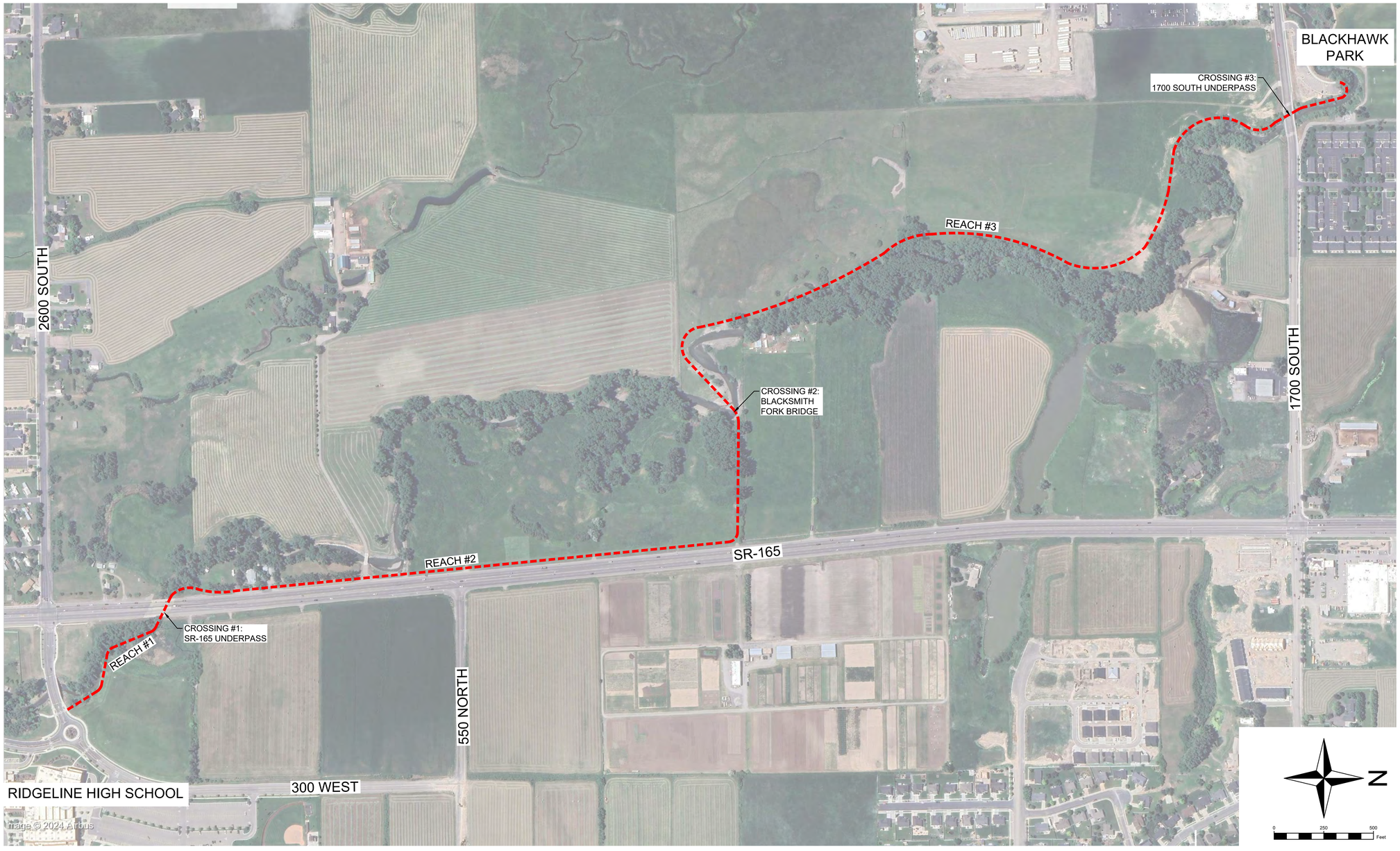
SETH ALDER FARM, LLC (Parcels #02-089-0019, 03-002-0001, 03-002-0002 and 03-002-0009)

The Alder Family had previously expressed their willingness to Cache County officials to participate in the trail project by dedicating a public access ROW for the trail along the west bank of the BSF River. CSG furthered discussions with Alex Bearnson, the representative for Seth Alder Farm, LLC, who confirmed the same and also provided the project team a conceptual site plan showing their master plan for all the Alder property, which included a trail along the west bank of the BSF River. The Alder Team envisions the trail being setback from the river just outside of the existing treey canopy. A Memorandum of Understanding (MOU) has been drafted between Cache County and the Alder Family to memorialize this mutually-supported approach, and can be found in Appendix A.

RECOMMENDED ROUTE

Given the unwillingness of the Fuhriman and Vail families to participate, it is understood that the first leg of the trail from the roundabout at RHS would have to either (1) first run west to the SR-165 and 2600 South intersection and then north along the west side of SR-165 until a connection could be made with the Alder properties, or (2) follow the river running northwest from the roundabout, cross under SR-165 at the existing UDOT bridge structure and then run north along the westside of SR-165. Given the desire to provide user safety, the traffic levels and speeds of SR-165, and a desire to provide as much vehicle/pedestrian separation as possible, Cache County staff directed this study to focus on the second option of running the

trail under the SR-165 structure. Therefore, the recommended route will run from the RHS roundabout along the northside of the BSF River, under the SR-165 bridge, along the westside of the highway until reaching the Millville 750 North ROW, cross west over the BSF River, head north along the westside of the BSF River to 1700 South in Logan, and then cross either above- or below-grade at the existing bridge. This recommended route is shown graphically in Figure 1.



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BLACKSMITH FORK TRAIL

TRAIL OVERVIEW
CACHE COUNTY, UT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 23-369
DRAWN BY: L. WESTON
PROJECT MANAGER: M. TAYLOR
ISSUED: 4/26/2024

OVERVIEW

FIGURE 1

P:\2023\23-369 BSF River Trail\Civil\AutoCAD\Exhibit\23-369 Trail Overview

DESIGN STANDARDS

The design user for this trail includes pedestrians and urban cyclists. Although it is anticipated that the vast majority of the trail will be ADA-compliant, it is possible that short segments at bridge crossings may not be, as these crossings involve retrofitting existing infrastructure. Equestrian and motorized users will not be accommodated. Several guidance documents were considered for use in selecting the design standards for this project. Most appropriate would have been the new Utah Trail Network standards; however, they were not yet available from UDOT at the time the study was conducted. The AASHTO Guide for the Development of Bicycle Facilities, 4th Edition appeared the next best standard suited to the circumstances of the project.

Cache County Trail representatives selected asphalt as the preferred material given the absence of joints and the resultant smoother riding surface. Concrete would only be used at bridge underpass locations. Relevant design criteria, including those regarding cross-sectional elements, such as trail width, shoulders, cross-slope, etc. are provided in Table 1.

TABLE 1. PROJECT DESIGN CRITERIA

Design Element	Value	Unit	Source	Page
Width	12	ft	AASHTO	5.2.1
Shoulders/shy/clearance	2	ft	AASHTO	Figure 5-1
Shoulder Slope	6:1	-	AASHTO	Page 5-5
Clear Zone to water or 3:1+ Slope	5	ft	AASHTO	Page 5-5
Design Speed	18	mph	AASHTO	Page 5-13
Min Radius	60	ft	AASHTO	Table 5-2
Cross-Slope	2	%	AASHTO	Table 5-15
Longitudinal Grade*	5	%	AASHTO/ATBCD	Page 5-16
Bridge Railing Spacing Max	6	in	AASHTO	Figure 5-11
Vertical Clearance Preferred	10	ft	AASHTO	Page 5-6
Vertical Clearance Min	8	ft	AASHTO	Page 5-6
Stopping Sight Distance @ Max Grade	180	ft	AASHTO	Figure 5-7
Min Length of Crest Vert. Curve	180	ft	AASHTO	Figure 5-8
Sight Triangles	15x25	ft	AASHTO	Figure 5-16
Extra-width at switchbacks	4 to 6	ft	AASHTO	Page 5-17

*Exceeding max grade at underpasses could be mitigated with railings, landings, signage or widening

The two criteria that may prove difficult to conform to at the trail underpasses are “Longitudinal Grade” and “Vertical Clearance Min”, as further discussed in the “Proposed Conditions” portion of this study.

EXISTING CONDITIONS & PROPOSED CONDITIONS

For discussion purposes, the recommended route is here broken into three segments or “reaches” and three “crossings” as designated in Figure 1. Existing and proposed conditions at each will be discussed.

REACH 1: RIDGELINE HIGH SCHOOL TO SR-165 BRIDGE

The project begins at the end of a short 900-ft trail that runs along the east bank of the BSF River just west of 300 West and which terminates at the 200 North roundabout. The river corridor between 2600 South and SR-165 is undeveloped. The National Wetlands Inventory does indicate the potential for jurisdictional wetlands to exist adjacent to this 300' of river frontage. Further analysis may be needed here by a wetland consultant to ascertain the extent of potential impacts and the proper permitting requirements with the US Army Corps of Engineers (USACE). A photo log of the corridor extending from "Reach 1" to "Crossing 2" is provided in Appendix B.

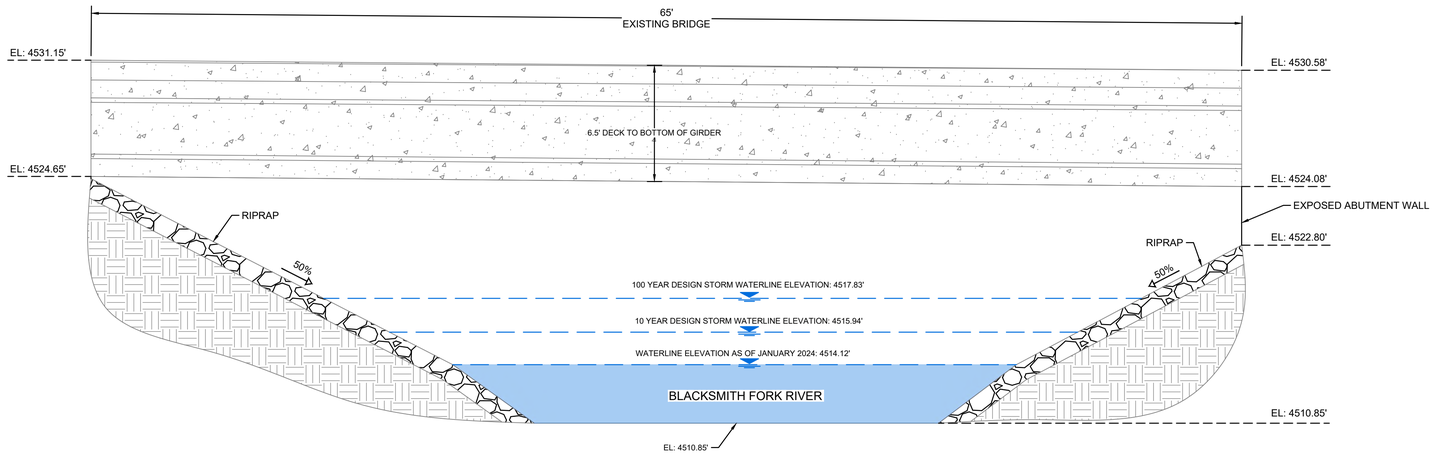
CROSSING 1: SR-165 BRIDGE OVER BSF RIVER

The SR-165 Bridge (UDOT Structure #F-568) over the BSF River was constructed in the early 1990's with structural details for the structure stamped in July 1990. The river crosses at a 30°-degree skew relative to the highway. The bridge was built on 4' abutment walls that sit atop buried piles. Riprap slopes descend at a grade of 2:1 to the river channel. The original drawings for the bridge are contained in Appendix C. The as-surveyed cross-section of the bridge, based on a ground survey by the CSG Land Survey Team in winter of 2024 using a robotic total station, is shown in Figure 2. There is roughly 13.2' from the bottom of the bridge girders to the flowline of the open river channel below.

Based on 1990 drawings of the existing SR-165 bridge over the BSF River (see Appendix C) and the 2024 ground survey of the existing structure, threading the trail under the existing SR-165 bridge will require (1) the addition of a 4' retaining wall adjacent the existing exposed abutment, (2) the shifting of the existing channel approximately 2' to the south, and (3) installation of a jersey barrier between the trail and the river itself. The 12' trail will provide 2' of shy on either side, and an 8' travel-way down the middle.

Preliminary hydraulic analyses were performed for both this bridge and the bridge at 1700 South as discussed in its subsequent section. The 10-year and 100-year flow rates from the FEMA Flood Insurance Rate Study were used. Autodesk Hydraflow software was used to evaluate the 10-year and 100-year storm event river flowrate values using the as-surveyed channel cross-section and longitudinal slope. The Flood Insurance Rate Study and the hydraulic calculations can be found in Appendix D. The proposed design, shown in Figure 2, will be able to accommodate 8' vertical clearance, while still keeping the trail roughly at the level of the 10-year design storm.

Based on survey data gathered by CSG, there is sufficient space within the UDOT ROW to complete the EB to NB ascent exiting the underpass and maintain a longitudinal slope of 6%-7%. As noted in Table 1, the steeper slope could be mitigated by widening the trail by another 4'-6' to allow slower users to pull to the side.

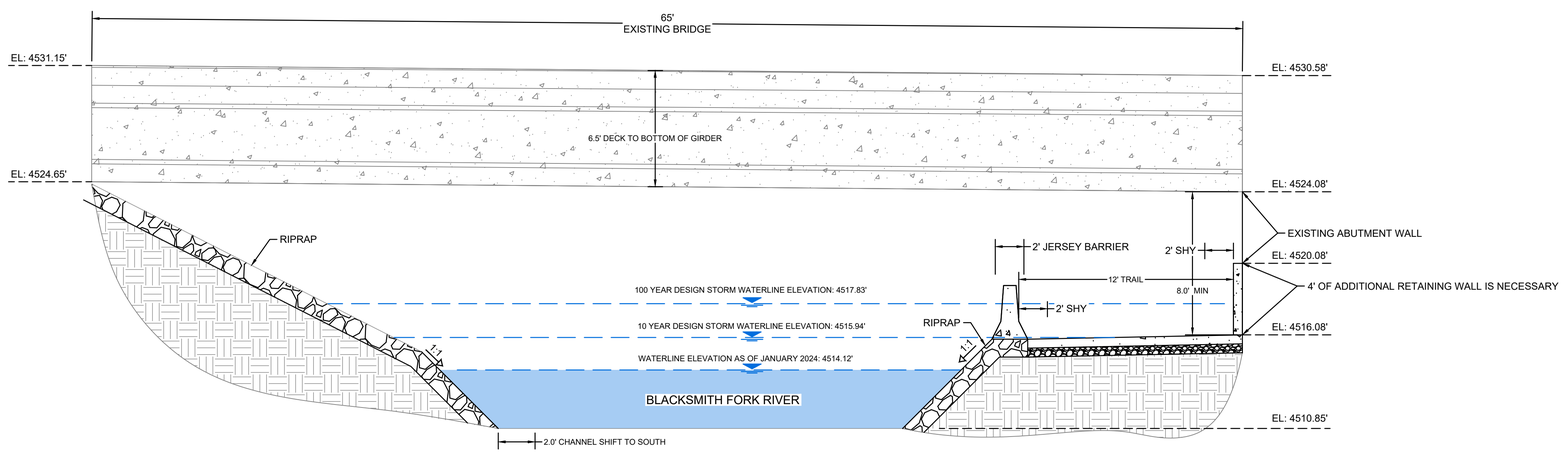


SECTION A-A

SR-165 BRIDGE
EXISTING CONDITIONS

SCALE: 1" = 4'

NO VERTICAL EXAGGERATION



SECTION A-A

SR-165 BRIDGE
PROPOSED IMPROVEMENTS

SCALE: 1" = 4'

NO VERTICAL EXAGGERATION

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BSF RIVER TRAIL X-SECTIONS
EXHIBIT
CACHE COUNTY, UT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 23-369
DRAWN BY: L. WESTON
PROJECT MANAGER: M. TAYLOR
ISSUED: 4/25/2024

SR-165
BRIDGE

FIGURE 2

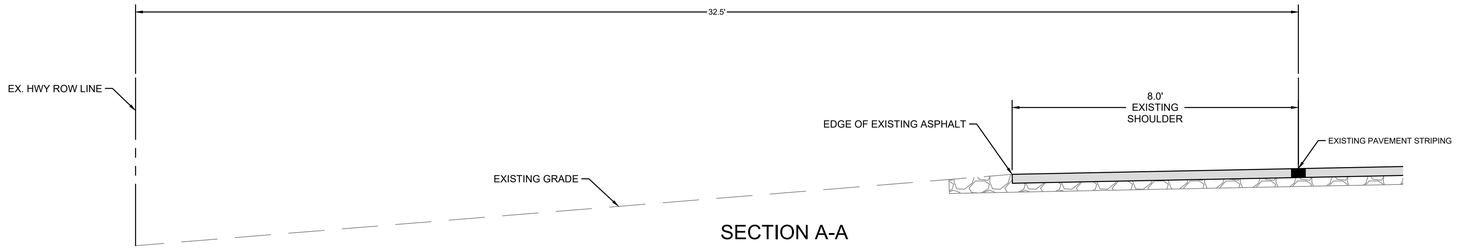
REACH 2: SR-165 BRIDGE TO MILLVILLE BSF RIVER CROSSING

The distance between the existing UDOT ROW fence line and the existing highway shoulder stripe is approximately 50' in width for the first 200' of this reach, and thereafter is generally 32.5' in width. Existing grade slopes directly from the edge of pavement to the fence line with a vertical drop between shoulder and fence of approximately 5' on the south and decreasing to 1.5' on north. This reach of the trail corridor is generally free of obstructions with the exception of a crash cushion and jersey barrier extending to 110' just north of the bridge. Approximately 6 existing access points for residential and agricultural use exist along this stretch. An existing cross-section is documented in Figure 3.

It is proposed that the trail be installed adjacent to the existing ROW fence so as to maximize the distance between the travel way and the pedestrian trail. In order to avoid any retaining walls and the associated drop-off, the trail would be installed at fence grade. Figure 3 shows proposed SR-165 cross-sections for two scenarios, one with a turning lane on SR-165 (in the case some adjacent development warrants one in the future) and one without.

The consultant explored the idea of installing a jersey barrier between the highway and the turning lane. Per current UDOT pricing, the cost is estimated at approximately $225 per linear foot plus crash cushions at each driveway or break in the barrier at a cost of $15,000/each. The cost of this side treatment could approach $750,000.

At approximately 750 North the trail would head west from the SR-165 corridor down the existing 750 North Millville ROW. CSG's Professional Land Survey team was tasked with determining the public-nature of this ROW. A memo confirming the public nature of the ROW and the associated rationale is contained in Appendix E.

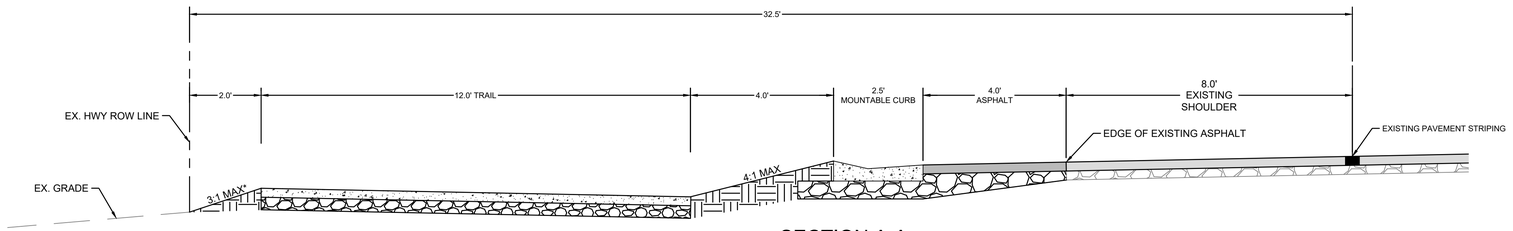


SECTION A-A

SR-165 EXISTING CONDITIONS

SCALE: 1" = 2'

NO VERTICAL EXAGGERATION



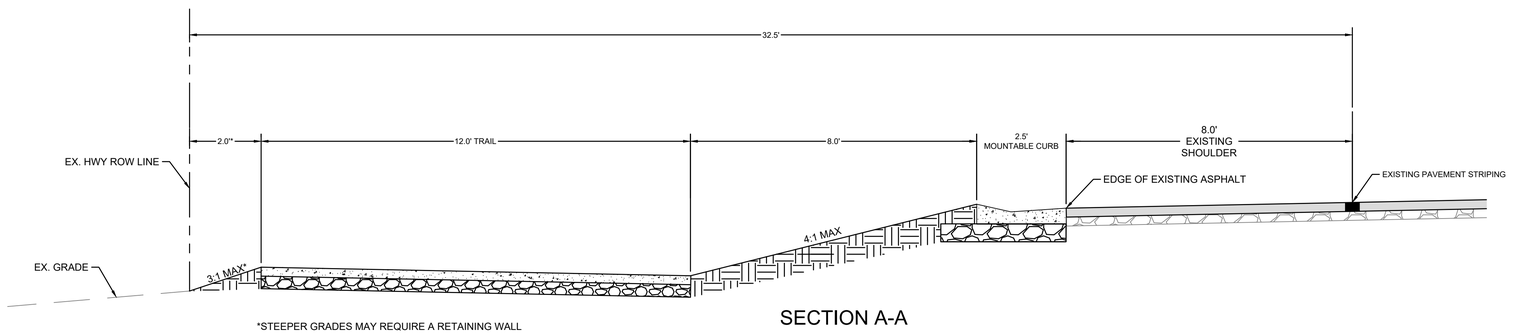
SECTION A-A

*STEEPER GRADES MAY REQUIRE A RETAINING WALL

SR-165 (W/ CURB & TURN LANE)
PROPOSED IMPROVEMENTS

SCALE: 1" = 2'

NO VERTICAL EXAGGERATION



SECTION A-A

*STEEPER GRADES MAY REQUIRE A RETAINING WALL

SR-165 (W/ CURB)
PROPOSED IMPROVEMENTS

SCALE: 1" = 2'

NO VERTICAL EXAGGERATION

VICINITY MAP

N.T.S.

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BSF RIVER TRAIL X-SECTIONS
EXHIBIT
CACHE COUNTY, UT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 23-369

DRAWN BY: L. WESTON

PROJECT MANAGER: M. TAYLOR

ISSUED: 4/25/2024

SR-165

FIGURE 3

CROSSING 2: MILLVILLE BSF CROSSING

Exiting the 750 North Millville ROW and entering the Seth Alder Farm, LLC, the trail would have to cross the Blacksmith Fork River either at a river bend on the east or on a straighter section to the west. The east crossing would likely be shorter with a span of approximately 70-ft, while the west crossing would be closer to 100-ft. Figure 4 highlights the two possible crossing locations.

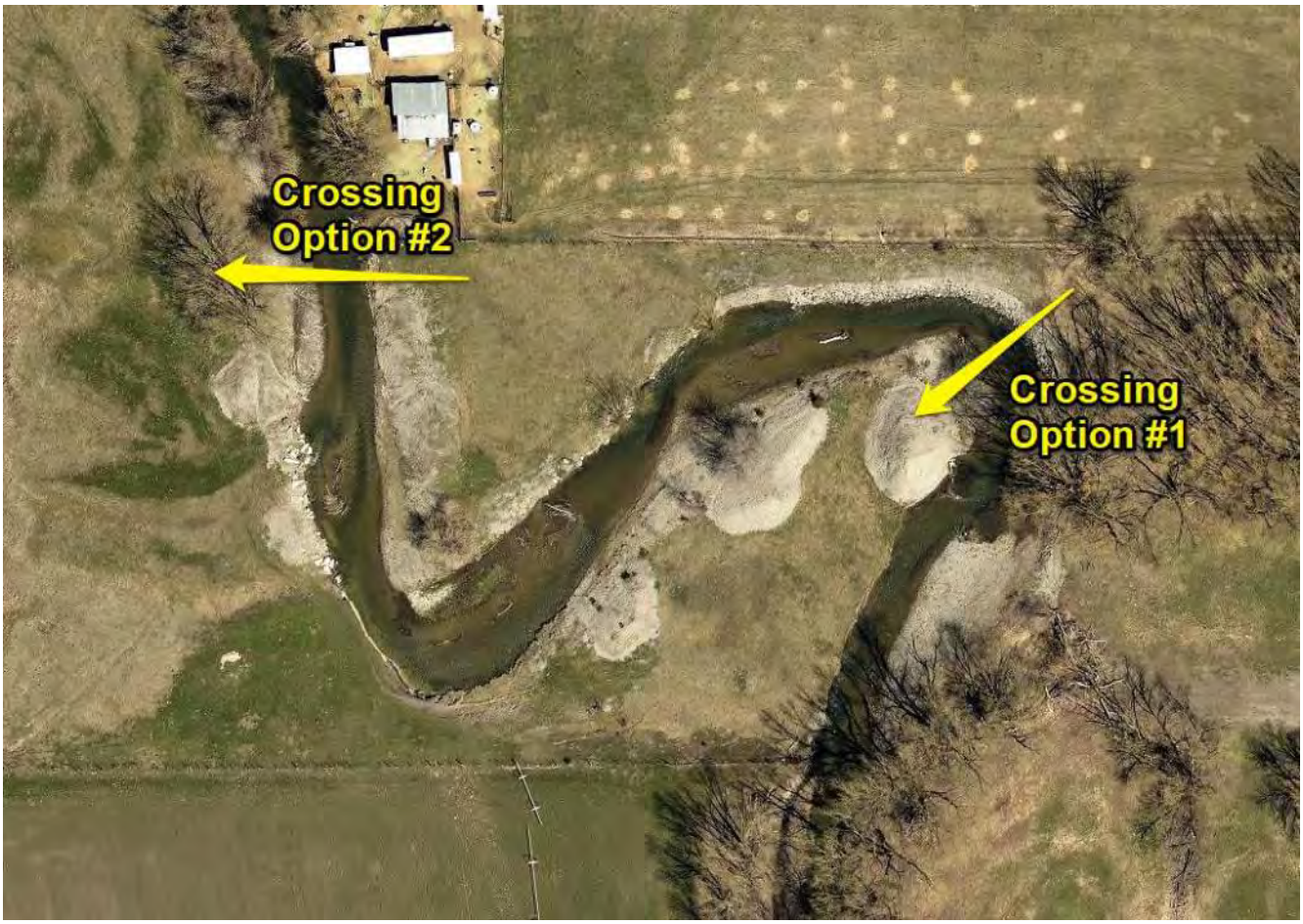


Figure 4 – Potential Crossing Locations

A premanufactured steel pedestrian bridge with custom-formed concrete abutments, would be the most economical fit for this scenario. Alternatively, if the Alder family succeeds in constructing a public roadway through the Millville 750 North ROW as part of their development prior to the trail construction, the trail could be incorporated into the roadway bridge and parallel or partially parallel the roadway.

REACH 3: MILLVILLE BSF RIVER CROSSING TO LOGAN 1700 SOUTH BRIDGE

This portion running through the Seth Alder Farm, LLC is relatively flat with trees lining the west bank of the BSF river. A wetland delineation has been performed previously by CSG for

the Alder family (see Appendix F). No wetlands were mapped adjacent the west side of the BSF within Reach 3.

It is possible that portions of this trail would sit within the 100-year floodplain. This study assumes that the trail will follow native grade; however, it could be built on a raised embankment to avoid the potential for occasional flooding.

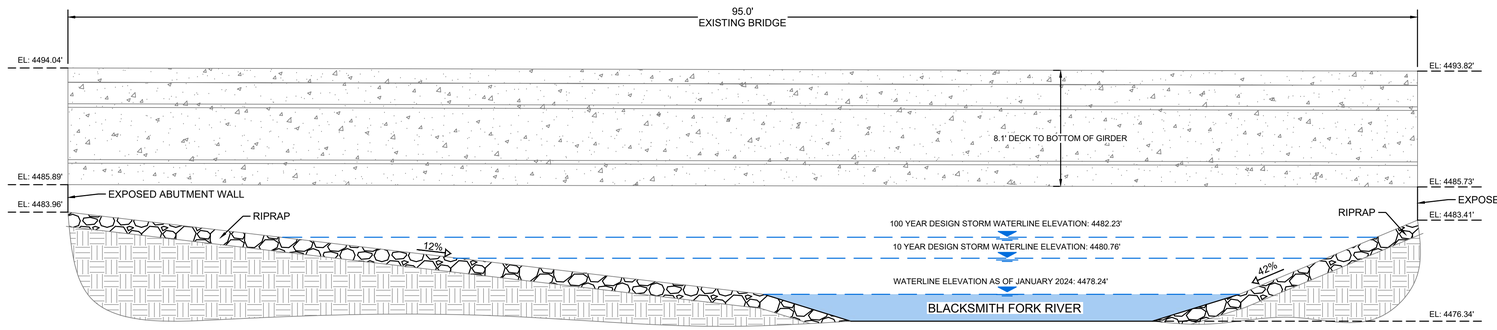
CROSSING 3: LOGAN 1700 SOUTH BRIDGE

The bridge at 1700 South crosses over the BSF River at a 30° skew. The river channel is not centered within the crossing but shifted to the east leaving a flatter 8:1 riprap armoring slope on the west and a steeper 2:1 slope on the east. The as-surveyed cross-section of the bridge based on a ground survey by CSG in the winter of 2024 using a robotic total station is shown in Figure 5. There is roughly 9.4' from the bottom of the girders to the flowline of the channel below.

The 1700 South bridge will not require any retaining walls or shifting of the existing channel, but would still require a jersey barrier separating the trail from the river proper. However, as shown in Figure 5, even at a reduced vertical clearance of 6.5', the trail would be flooded, with a depth of approximately 1.5', based on the calculated flow rates from the 10-year storm event. Additionally, the trail would be 1-ft above the water level as-surveyed in January of 2024, with winter conditions typically representing the lowest flow conditions. CSG estimates that the trail would likely be flooded on an annual basis, reducing the window of usability and creating ongoing maintenance concerns.

There are examples in Cache County where these conditions (reduced vertical clearance and trail flooding) have been deemed acceptable trade-offs for the grade-separated crossing. Both the existing bridges at the Logan River Trail near Stokes Nature Center in Logan Canyon and the Logan River Trail at 1000 West Street were surveyed by the CSG Team. Reference photos of the same can be found in Appendix G, with the proposed underpass design shown in Figure 5 being similar to the existing conditions at 1000 West. Should the underpass approach be pursued, those maintaining the trail will have to be willing to accept these conditions.

Alternatively, to an underpass crossing an at-grade crossing could be considered with various options ranging from a simpler Rectangular Rabid Flashing Beacon System (RRFB) to a more sophisticated High-intensity Activated Crosswalk Beacon (HAWK). Both options are included in the cost estimate.

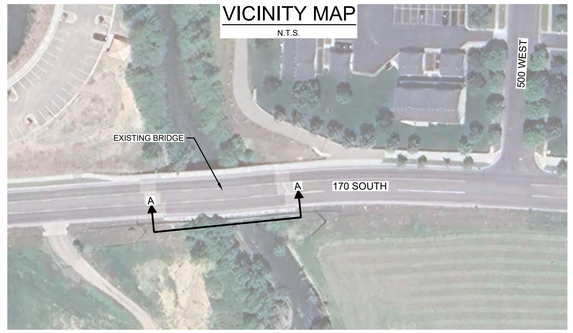


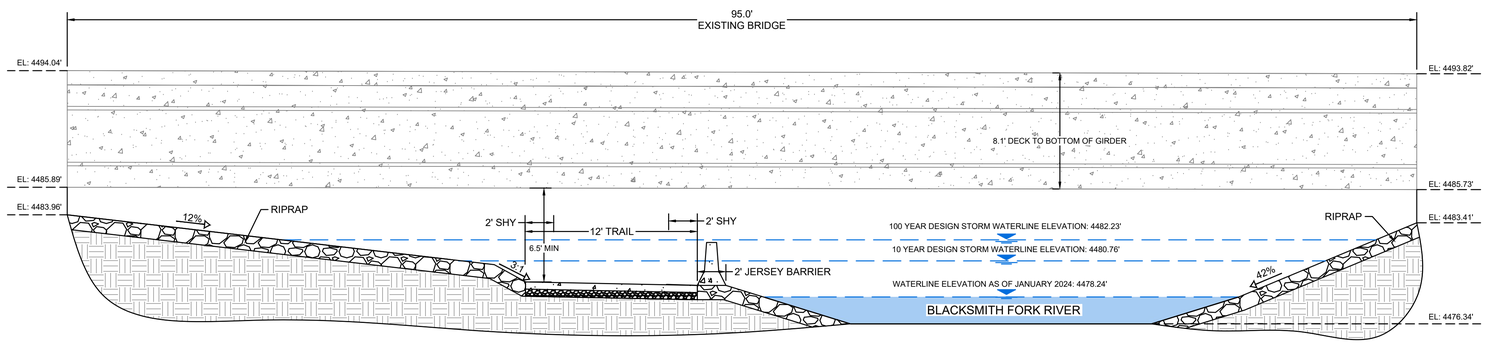
SECTION A-A

1700 SOUTH BRIDGE
EXISTING CONDITIONS

SCALE: 1" = 5'

NO VERTICAL EXAGGERATION





SECTION A-A

1700 SOUTH BRIDGE
PROPOSED IMPROVEMENTS

SCALE: 1" = 5'

NO VERTICAL EXAGGERATION

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

BSF RIVER TRAIL X-SECTIONS
EXHIBIT
CACHE COUNTY, UT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 23-369
DRAWN BY: L. WESTON
PROJECT MANAGER: M. TAYLOR
ISSUED: 4/25/2024

1700 SOUTH BRIDGE

FIGURE 5

PUBLIC ENTITY INVOLVEMENT

CSG met with representatives from those municipalities through which the trail would traverse, including Millville City, Providence City, and Logan City. A meeting was also held with the UDOT Region 1 Permits Office. Objectives for the meetings included:

1. Inform the municipal representatives of the trail feasibility study including its objectives and current findings.
2. Understand how the trail project would integrate with the municipalities trail master plans.
3. Inquire into the municipalities' respective willingness to participate in trail maintenance.

While more detailed notes from these meetings can be found in Appendix H, key points are summarized as follows:

1. MILLVILLE CITY
    a. While staff was generally supportive of the trail alignment, the City does not have any Trail Master Plan in place to which this trail would connect.
    b. According to Staff, the City does not currently own any equipment capable of plowing trails and their budget would not currently allow for participation in trail maintenance.

2. PROVIDENCE CITY
    a. Staff was supportive of the project and pointed out that the trail would integrate well with other master planned trails and bicycle facilities that will connect from the BSF river to the Bonneville Shoreline Trail along 1700 South / 300 South and 550 North / 1000 South. In particular, a 10-ft trail will be installed along the north side of 1700 South / 300 South.
    b. Staff was concerned about entertaining sub-standard vertical clearance at the 1700 South given the safety ramifications, and about the potential for seasonal flooding of the trail where it traverses the Alder Property.
    c. Staff is open to maintaining the trail themselves. They would be interested in asking the Alder Family to dedicate a small piece of ground for a maintenance shed so the plow equipment could be permanently housed on the westside of the highway to service this trail segment.

3. LOGAN CITY
    a. Staff was supportive of the project and noted that the trail fits very well with City's master plan. Construction of this trail would likely prompt the City to prioritize the construction of a trail segment from Blackhawk Park to SR-165 to connect this trail to the 800 West trail and Logan River trail.
    b. Concerns from City Staff about running the trail along the highway. Also discussed the viability of the 1700 South bridge crossing. Staff expressed ongoing maintenance and clearance concerns. Some preference expressed for

an above-grade crossing given these deficiencies. Above-grade crossing would have to address visibility concerns.

4. UDOT
    a. David Alger, UDOT Region 1 Permits Engineer, was not opposed to running the trail in the ROW, nor to utilizing the existing structure as an underpass at SR-165.
    b. David Alger suggested running the trail along the eastside of the highway from the SR-165 bridge over the BSF River to 1700 South and then west to Blackhawk Park as a way to save money.
    c. Additional feedback on drainage and cross-sectional elements can be found in Appendix H.

COST ESTIMATING

This section addresses estimates for both construction and ongoing routine maintenance. A preliminary construction cost estimate was prepared for the project's preferred alignment running from the roundabout at RHS in Millville to Blackhawk Park in Logan. Pay item pricing was garnered from publicly available Bid Tabulation Reports available on UDOT's website, in particular from three similarly-sized 2023 UDOT trail projects. The Construction Cost Estimate provided in Table 2 provides alternate pricing for the RRFB and HAWK above-grade crossing options at the 1700 South bridge.

Table 2 - Blacksmith Fork River Trail Feasibility Study

Programming Cost Estimate

Trail Construction

Pay Item	Unit Cost	Unit	Quantity	Line Total
Traffic Control	$ 30,000.00	lump sum	1	$ 30,000
Silt Fence	$ 4.50	ln ft	8,620	$ 38,790
Clear and Grub	$ 19,000.00	acre	3.6	$ 67,678
Broadcast Seed	$ 67.00	1,000 sq ft	69	$ 4,620
Untreated Base Course (8" Thick)	$ 105.00	cu yd	3,422	$ 359,358
HMA 1/2-inch (4" thick)	$ 230.00	ton	2,529	$ 581,563
MSE Retaining Wall (200' x Average Height of 4')	$ 120.00	sq ft	800	$ 96,000
Survey & Civil Design (7%)				$ 82,461
Mobilization (10%)				$ 117,801
Subtotal:				**$ 1,378,270**

Pedestrian Bridge Over Blacksmith Fork River

Pay Item	Unit Cost	Unit	Quantity	Line Total
Ped Bridge Abutments	$ 25,000.00	lump sum	1	$ 25,000
Ped Bridge (16'x50')	$ 125.00	sq ft	800	$ 100,000
Riprap (6'x16'x2' each side)	$ 275.00	cy	14	$ 3,911
Structural Design (5%)				$ 10,313
Mobilization (10%)				$ 12,891
Subtotal:				**$ 152,115**

SR-165 Underpass

Pay Item	Unit Cost	Unit	Quantity	Line Total
Untreated Base Course (8" Thick, 16' wide)	$ 105.00	cu yd	48	$ 5,003
Concrete Flatwork (4" Thick, 12' wide)	$ 9.00	sq ft	1,440	$ 12,960
Median Barrier	$ 200.00	ln ft	120	$ 24,000
Retaining Wall	$ 300.00	ln ft	120	$ 36,000
Embankment & Channel Re-grading	$ 40,000.00	lump	1	$ 40,000
Riprap Stabilization	$ 275.00	cy	75	$ 20,625
Geotechnical, Civil & Hydraulic Design (20%)				$ 27,718
Mobilization (10%)				$ 13,859
Subtotal:				**$ 180,164**

1700 South Underpass

Pay Item	Unit Cost	Unit	Quantity	Line Total
Untreated Base Course (8" Thick, 16' wide)	$ 105.00	cu yd	32	$ 3,335
Concrete Flatwork (4" Thick, 12' wide)	$ 9.00	sq ft	960	$ 8,640
Median Barrier	$ 200.00	ln ft	80	$ 16,000
Earth Moving	$ 30,000.00	lump	1	$ 30,000
Riprap Stabilization	$ 275.00	cy	67	$ 18,425
Geotechnical, Civil & Hydraulic Design (20%)				$ 15,280
Mobilization (10%)				$ 7,640
Subtotal:				**$ 99,320**

1700 South Above-Grade Crossing (HAWK)

Pay Item	Unit Cost	Unit	Quantity	Line Total
HAWK (mast arms, hardware, wiring, trenching, junction boxes, boring, advance warning signs, crosswalk striping, etc.)	$ 125,000.00	lump sum	1	$ 125,000
ADA Ramp	$ 3,000.00	ea	2	$ 6,000
Signal Design (5%)				$ 6,550
Mobilization (10%)				$ 13,100
Subtotal:				**$ 150,650**

1700 South Above-Grade Crossing (RRFB)

Pay Item	Unit Cost	Unit	Quantity	Line Total
Rectangular Rapid Flashing Beacon Solar Assembly (wiring, trenching, boring, advance warning signs, crosswalk striping, etc.)	$ 30,000.00	lump sum	1	$ 30,000
ADA Ramp	$ 3,000.00	ea	2	$ 6,000
Signal Design (5%)				$ 1,800
Mobilization (10%)				$ 3,600
Subtotal:				**$ 41,400**

Scenario #1 (1700 South Underpass) GRAND TOTAL + 20% Feasibility Level Contingency: $ 2,171,843.56

Scenario #2 (1700 South HAWK) GRAND TOTAL + 20% Feasibility Level Contingency: $ 2,233,439.38

Scenario #3 (1700 South RRFB) GRAND TOTAL + 20% Feasibility Level Contingency: $ 2,102,339.38

The cost of ongoing routine maintenance after construction is subject to several variables including trail surfacing material, adjacent landscaping, snowfall frequency, flooding frequency and cleanliness standards. Drawing from data compiled by the "Rails to Trails" Conservancy in 2022, routine annual maintenance for a paved trail such as the one proposed in this study lacking amenities, trailheads, and associated landscaping, could cost approximately $2,400/mile. This excludes the cost of periodic maintenance for items such as cutting tree roots, bridge inspection, asphalt sealing and so on.

CONCLUSION

This feasibility study conducted by CSG in collaboration with Cache County Corporation has provided valuable insights into the viability of constructing a shared-use trail along the Blacksmith Fork River corridor from Ridgeline High School to Blackhawk Park. The willingness of private property owner participation was assessed, which led to the development of a preferred trail alignment, associated design standards, and proposed solutions for the three major trail crossings and the SR-165 cross-section. A construction estimate was developed which included bid alternates for different crossing types at 1700 South.

Engagement with public entities such as Millville City, Providence City, Logan City, and UDOT has revealed general support for the project, but varying degrees of willingness to participate in trail maintenance. Ongoing dialogue and collaboration with these entities will be critical for the successful implementation and maintenance of this proposed trail.

The next steps for this project include:

- Further coordination with UDOT to secure funding for the project as part of the new "Utah Trail Network"
- Environmental analysis to determine wetland impacts across "Reach 1" of the project
- Real estate negotiations with the Alder Family to secure the needed trail easement or right-of-way
- Securing interlocal agreements to ensure maintenance of the new facility
- Flood modeling through the Alder property to determine the recurrence period of potential inundation

APPENDICES

APPENDIX A - ALDER FAMILY MEMORANDUM OF UNDERSTANDING

civilsolutionsgroup inc.

Memorandum of Understanding

Cache County Corporation

(Partner)

Seth Alder Farm, LLC

(Partner)

This Memorandum of Understanding (MOU) sets forth the terms and understanding between the Cache County Corporation (the County) and Seth Alder Farm, LLC (Alder Family) to construct a publicly accessible shared-use trail on the west side of the Blacksmith Fork River through the Alder Family properties from approximately 750 North in Millville to 1700 South in Logan.

Background

The County plans on procuring funding for the construction of a shared-use trail that will connect Ridgeline High School in Millville to Blackhawk Park in Logan. For the purpose of user safety and experience, the County desires to place the trail as close to the Blacksmith Fork River as possible rather than adjacent to public streets/highways.

The Alder Family desires to develop their land into a variety of mixed-use, commercial and multi-family residential projects as pictured in Attachment A. The trail would provide public pedestrian and bicycle access to their project and serve as an amenity for residents and guests.

Purpose

This MOU will establish the intent of both parties to facilitate the construction of said trail through the Seth Alder Farm, LLC properties. This common goal will be accomplished as follows:

- The County and its partnering public agencies agree to fund and construct the trail through the Alder Family properties.
- The Alder Family agrees to dedicate the trail right-of-way for public access at no cost to the County together with land sufficient for a maintenance shed to house equipment that would service the same trail.

Reporting

Agents from both parties will be responsible for evaluating the effectiveness of and adherence to this agreement. Responsive communication is expected of both parties regarding matters of affecting this agreement. Evaluation of this agreement and execution of its objectives will occur at an annual meeting of the partners.

Funding
This MOU is not a commitment of funds. It is expected that the trail construction will be funded by third-party public agencies.

Duration
This MOU is at-will and may be modified by mutual consent of authorized officials from the County and/or the Alder Family (Partners). This MOU shall become effective upon signature by the authorized officials from the partners and will remain in effect until modified or terminated by any one of the partners by mutual consent.

Contact Information
Cache County Corporation
Landis Wenger
Regional Trail & Active Transportation Coordinator
179 North Main, Suite 305
Logan, UT 84321
435-755-1646
landis.wenger@cachecounty.gov

Seth Alder Farms, LLC
Alex Bearnson
Agent
150 East 400 North
Logan, UT 84321
435-757-6403
Alex@nixonandnixon.com

_____Date:
Landis Wenger
Regional Trail & Active Transportation Coordinator
Cache County Corporation

_____Date:
Alex Bearnson
Agent
Seth Alder Farms, LLC

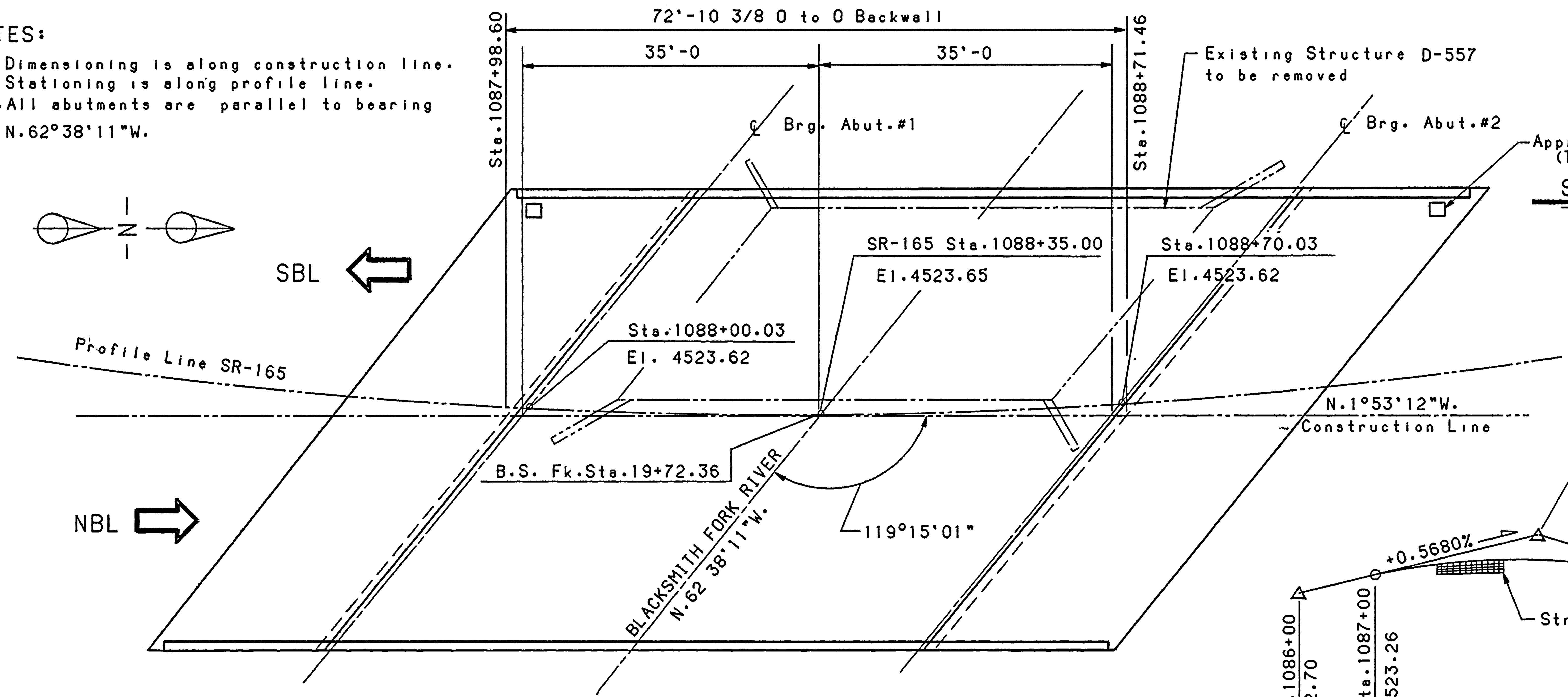
APPENDIX B - UDOT SR165 PHOTOGRAPHIC INVENTORY


RHS
RHS

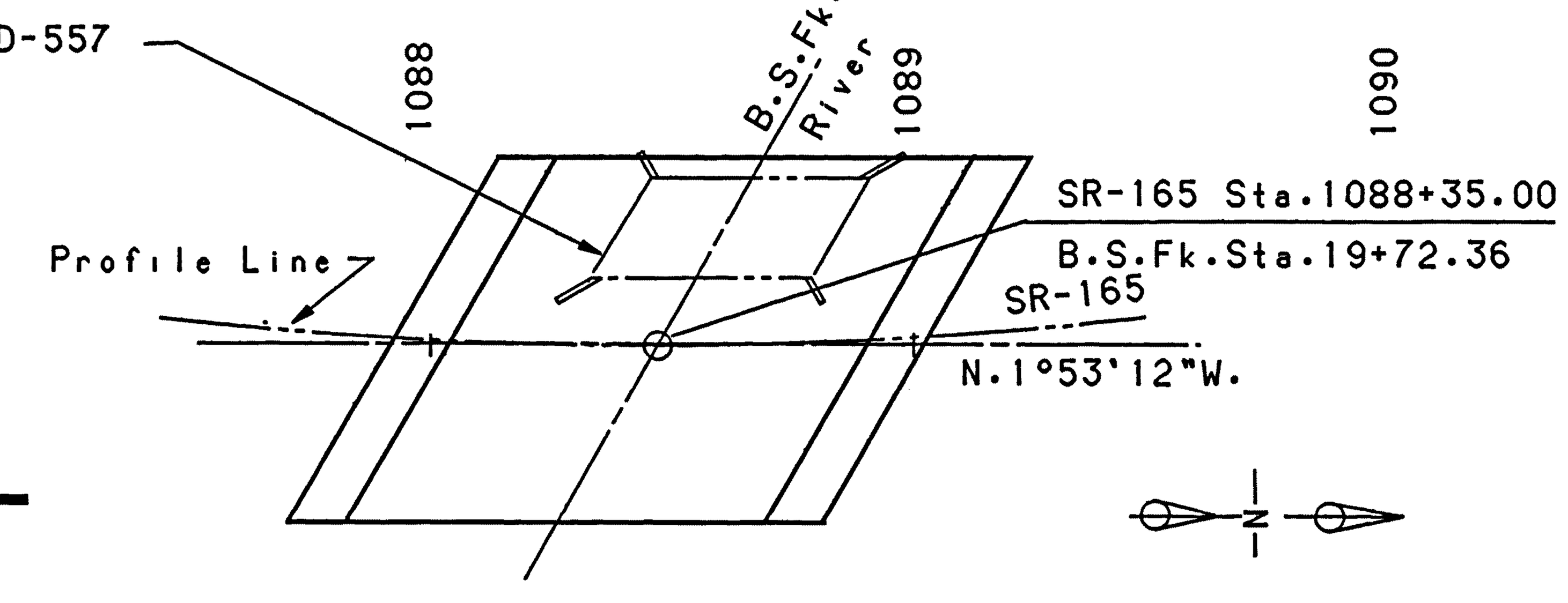
APPENDIX C - ORIGINAL DRAWINGS FOR SR-165 BRIDGE OVER BSF RIVER

NOTES:

1. Dimensioning is along construction line. Stationing is along profile line.
2. All abutments are parallel to bearing N.62°38'11"W.



PLAN



LOCATION

SR-165 CURVE DATA

Δ	=	2°42'18"
D	=	0°30'00"
R	=	11459.16'
T	=	270.55'
L	=	540.99'
P.I.		Sta.1089+84.42

GENERAL NOTES

1. Materials, construction, and workmanship shall be in accordance with the Utah Department of Transportation Standard Specifications for Road and Bridge Construction, Edition of 1979, and Supplements thereto which are in effect at the date of request for bids.

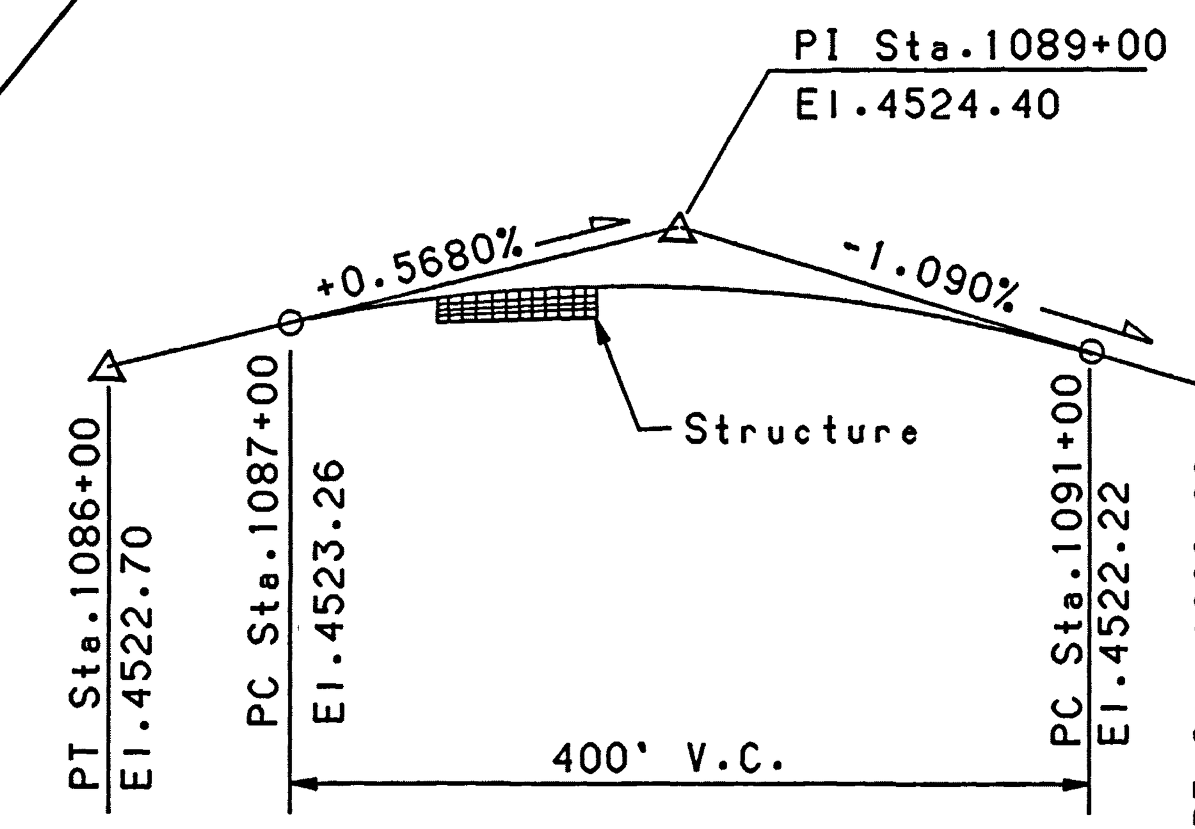
2. All reinforcing steel shall be deformed billet steel bars conforming to AASHTO designation M 31 Grade 60 and shall be epoxy coated.

3. All structural steel shall be structural carbon steel conforming to AASHTO designation M 270 Grade 36 except where noted otherwise.

4. Exposed concrete corners shall be chamfered 3/4" except where noted otherwise.

5. Cover to reinforcing steel shall be 2" except where noted otherwise.

6. All cast-in-place concrete shall be Class AA(AE) except where specified otherwise.



SR-165-PROFILE

HYDRAULIC DATA

(At Inlet End unless noted otherwise)

1. Drainage Area= 260 sq.mi.
2. Design Flood (Qd)= 1850 cfs.
3. 100-yr.Flood (Q100)= 1850 cfs.
4. Normal Depth (dn) for Qd= 7.89 ft.
5. Normal Stage Water Surface Elev. for Qd= 4516.89 ft.
6. Back-Water for Qd= 0.95 ft.
7. Back-Water Elev. for Qd= 4517.84 ft.
8. Back-Water Elev. for Qd (at outlet)= 4515.57 ft.
9. Velocity through Bridge opening for Qd= 9.50 ft/sec.
10. Back-water for Q100= 0.95 ft.
11. Back-Water Elev. for Q100= 4517.84 ft.
12. Overtopping Flood Frequency in years > 500 years
13. Magnitude of Overtopping Flood (Qovertopping) > 3000 cfs.
14. Water Surface Elev. for (Qovertopping)= 4520.2 ft.
15. Scour Depth = 7.00 ft.

INDEX OF SHEETS

1. Situation & Layout
2. Soil Data
3. Concrete Pile Details
4. Foundation Plan & Pile Layout
5. Abutment Details
6. Abutment Details
7. Prestressed Beam Details
8. Deck Plan & Section
9. Deck Sections
10. Framing Plan & Screed Elevations
11. Approach Slab Drain Details
12. Parapet Details
13. Reinforcing Steel Schedule

DESIGN DATA

HS 20-44 or Interstate Alternate Loading in accordance with AASHTO Specifications which are in effect at the date of request for bids.

Cast-in-place Concrete: fc=1400 psi, fs(Reinf.)=24000 psi, n=8

Prestressed Concrete: f'c= 5000 psi, fs(Nonprestressed)=24000 psi, n=6

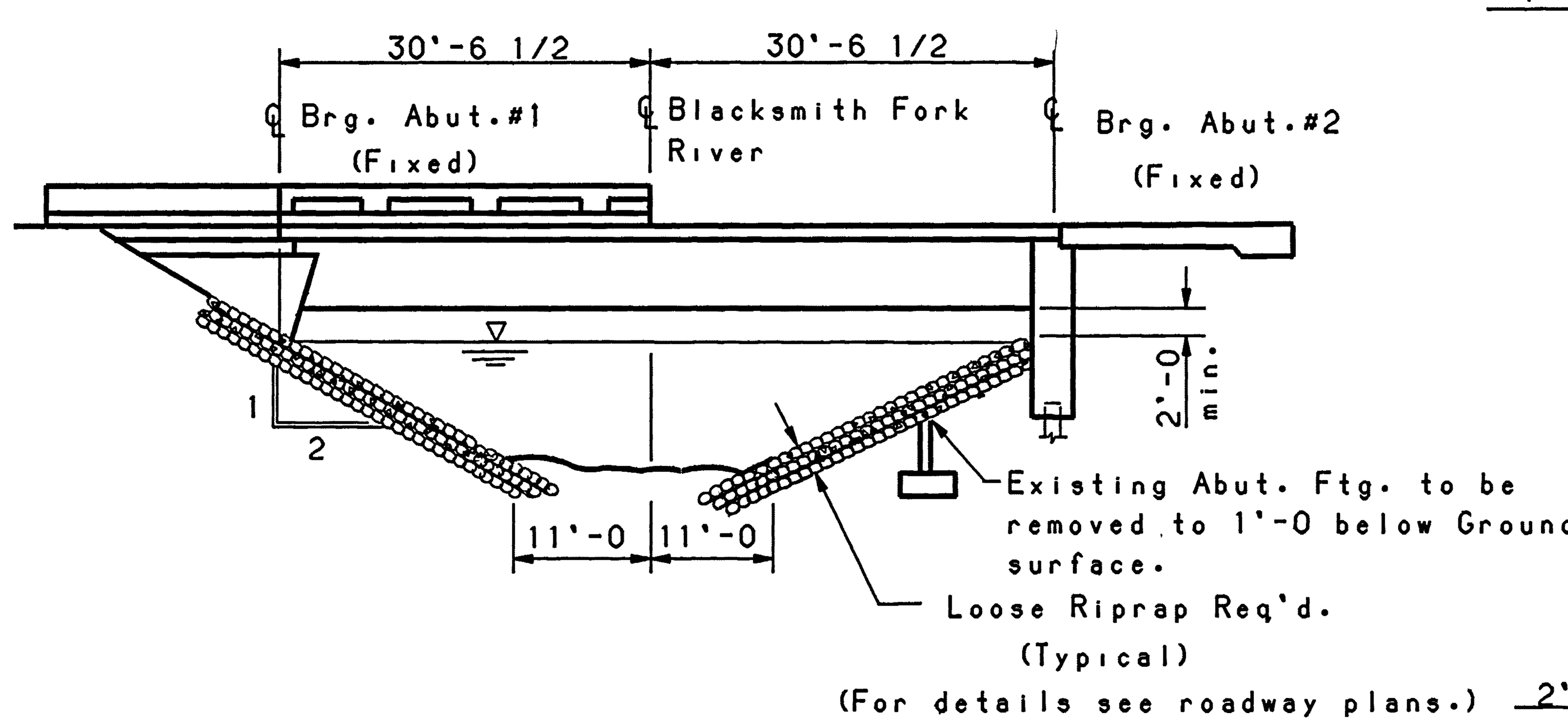
Structural Steel: fs=20000 psi

Wearing Surface: 1/2" Concrete, 35 lbs./sq. ft. Future Wearing Surface.

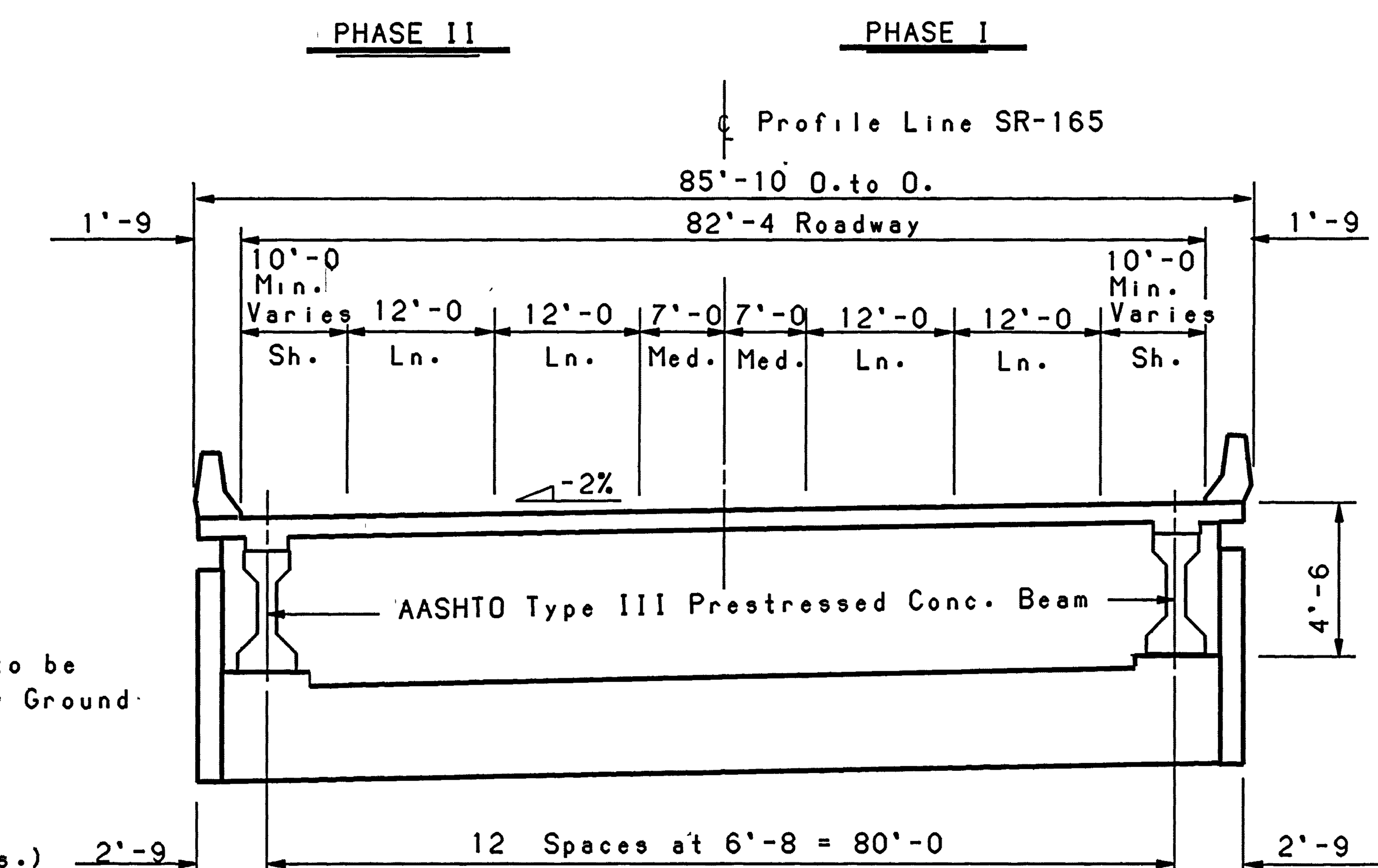
Design Speed: 50 m.p.h.

QUANTITIES

ITEM	ESTIMATED	UNIT	AS CONST.
Concrete Class AA(AE) (Est.Qty.520 Cu.Yd.)	1	Lump	
Reinforcing Steel (Epoxy Coated)	89506	Lbs.	
Structural Steel (Est. Qty.820 Lb.)	1	Lump	
Removal of Bridges	1	Lump	
Granular Backfill Borrow	180	Cu.Yd.	
Driven Piles	718	Lin.Ft.	
Furnishing Pile Driving Equipment	1	Lump	
Prestressed Concrete Members (Type III, 71'-4) (Specialty Item)	13	Each	



SECTION NORMAL TO BLACKSMITH FORK RIVER



SECTION THRU DECK

NO.	BY	DATE	REMARKS

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

SR-165, NIBLEY TO LOGAN
BLACKSMITH FK. RIVER XING.
SITUATION & LAYOUT

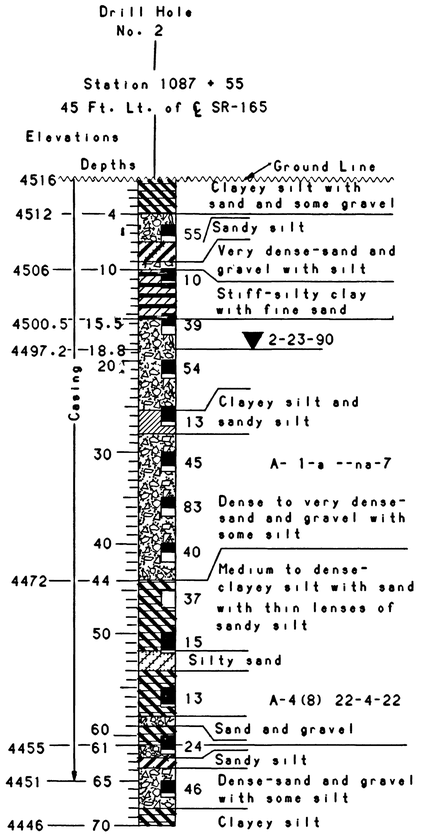
DESIGN	T.J.J. 11-21-89	CHECK	G.F. 7/16/90	1088+35.00
DRAWN	J.T.M. 11-28-89	CHECK	T.J.J. 6-4-90	STATION
QUANT.	J.T.M. 4-25-90	CHECK	T.J.J. 6-4-90	CACHE COUNTY
APPROVAL RECOMM.	7/2/90		[signature] CREW LEADER	DRG. NO.
APPROVED	7-18-90 DATE		[signature] CHIEF STRUCTURAL ENGR.	F-568

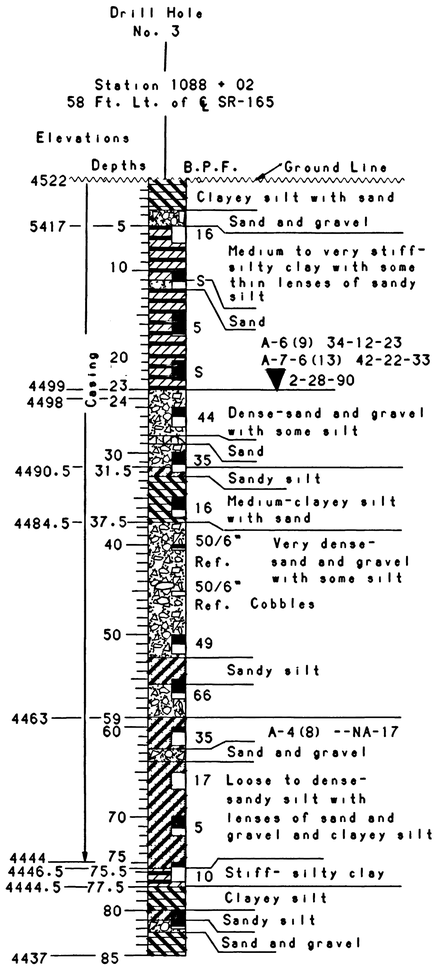
RS-0540 (1)
PROJECT NUMBER

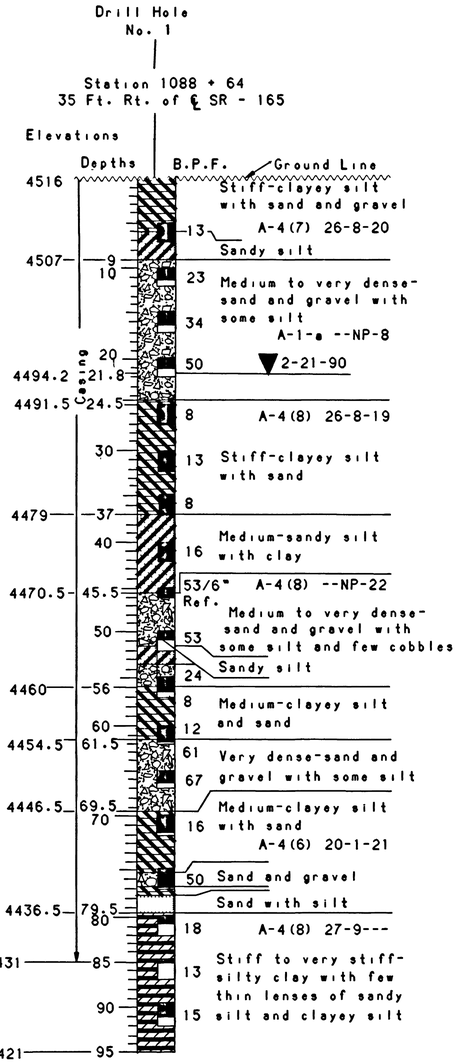
SHT. 1 OF 13

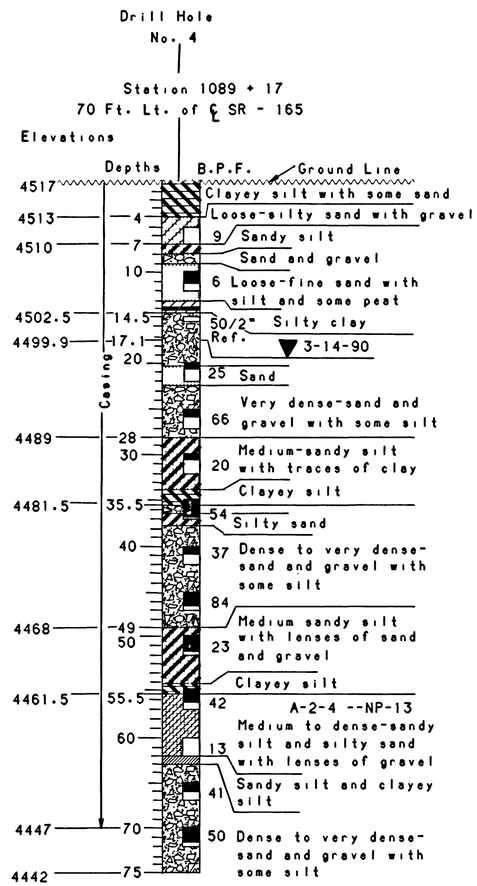
STRBORD

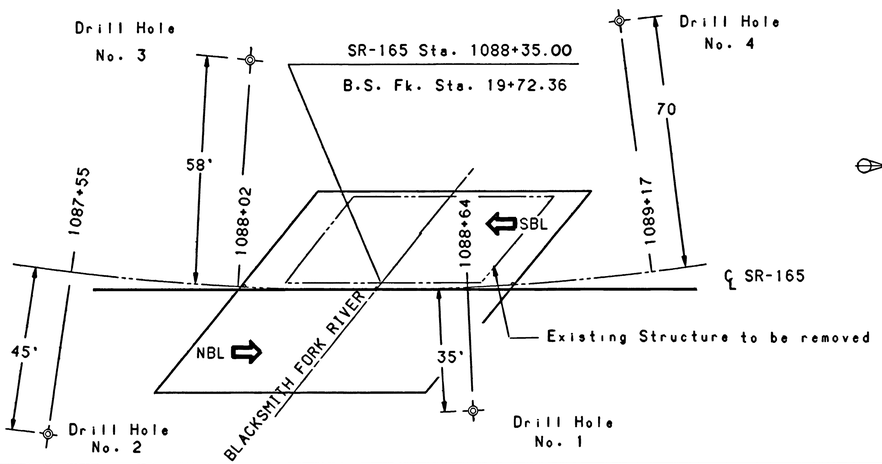
STRUCT:ESTRJTM.PADE0895:BLSMITH-FK1.JTM











NOTE: THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL

KEY TO DRILLING LOG

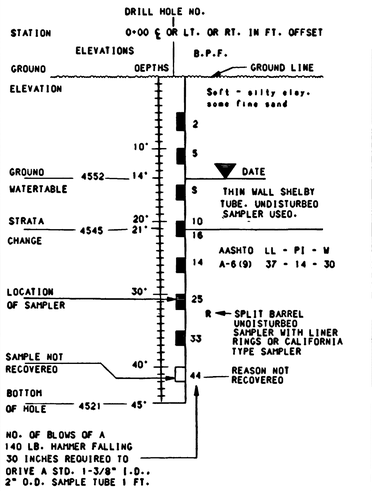
RELATIVE DENSITY (NON-PLASTIC SAND & SILT)

VERY LOOSE - LESS THAN 4 BLOWS PER FOOT
LOOSE - 4 TO 10 BLOWS PER FOOT
MEDIUM - 10 TO 30 BLOWS PER FOOT
DENSE - 30 TO 50 BLOWS PER FOOT
VERY DENSE - MORE THAN 50 BLOWS PER FOOT

CONSISTENCY (PLASTIC - SILT & CLAY)

VERY SOFT - LESS THAN 2 BLOWS PER FOOT
SOFT - 2 TO 4 BLOWS PER FOOT
MEDIUM - 4 TO 8 BLOWS PER FOOT
STIFF - 8 TO 15 BLOWS PER FOOT
VERY STIFF - 15 TO 30 BLOWS PER FOOT
HARD - MORE THAN 30 BLOWS PER FOOT

TOPSOIL OR FILL · IGNEOUS · SANDY CLAY
GRAVEL · LIMESTONE · CLAYEY SAND
SAND · CONGLOMERATE · SILTY CLAY
SILT · DOLOMITE · CLAYEY SILT
CLAY · SANDSTONE · SILTY SAND
SHALE · SILTSTONE · SANDY SILT



ABBREVIATIONS

L.L. - LIQUID LIMIT IN %
P.I. - PLASTIC INDEX
W. - NATURAL MOISTURE CONTENT IN %
Ref. - REFUSAL GREATER THAN 50 BLOWS PER 6"
PEN. - PENETRATION
G.W.T. - GROUND WATER TABLE
B.P.F. - BLOWS PER FOOT
N.P. - NON PLASTIC
AASHTO - SOIL CLASSIFICATION SYSTEM

NOTE: COBBLE - A ROCK FRAGMENT WITH AN AVERAGE DIMENSION BETWEEN AND 12 INCHES

BOULDER - A ROCK FRAGMENT WITH AN AVERAGE DIMENSION OF 12 INCHES OR MORE

RIG USED: MOBIL B-40 L & B-61

DATE DRILLED: NOVEMBER & DECEMBER 1989

NO.	BY	DATE	REMARKS

REVISIONS

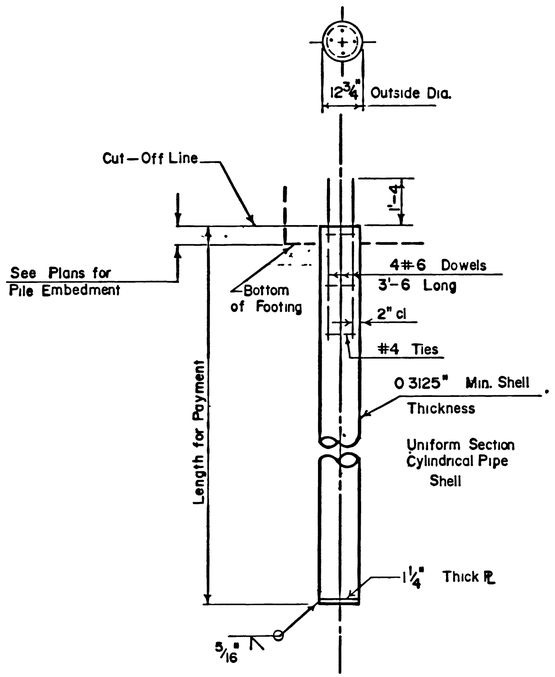
UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
MATERIALS & RESEARCH SECTION

SR-165, NIBLEY TO LOGAN
SR-165 OVER BLACKSMITH FORK RIVER
SOIL DATA

DESIGN	CHECK BASHA	L088+35.00
DRAWN KISTLER	CHECK	STATION
FOUNDATION FILE NO. 90-7-FS-1		CACHE COUNTY
APPROVAL RECOM. 6-18-90 DATE	Leon R. Rowley GEOTECHNICAL ENGR.	ORG. NO.
APPROVED 7-19-90 DATE	CHIEF STRUCTURAL ENGR.	F-568
RS-0540(1) PROJECT NUMBER		SHT. 2 OF 13

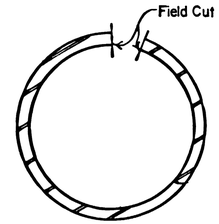
FIGURE 1

MATL•ENTLBEK•PADED3BLKSMITH-FRK•BENK

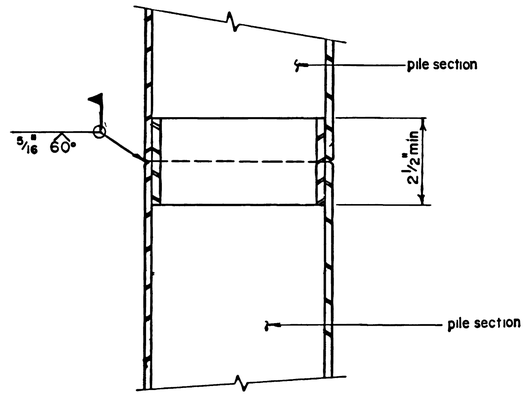


TYPE I

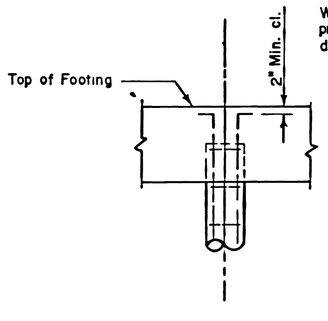
Splices in Type I piles shall be full strength welded splices.



Note.
Field cut piece of pile so when compressed it will slide inside pile sections.



PILE SPLICE DETAIL



DOWEL DETAIL

TYPE I

CYLINDRICAL SHELL PILES

Design shall be in accordance with the A A S H.T O. Specifications for Highway Bridges, which are in effect at date of request for bids

Pile shells shall be filled with class "A" concrete.

Reinforcing steel shall be adequately held in final position during placing of concrete around bars.

Pile hammer shall have a minimum rated energy of 45 Kip-feet.

Reinforcing steel and concrete for piles shall be included in the cost of "Driven Piles".

Reinforcing steel for Driven Piles shall not be epoxy-coated.

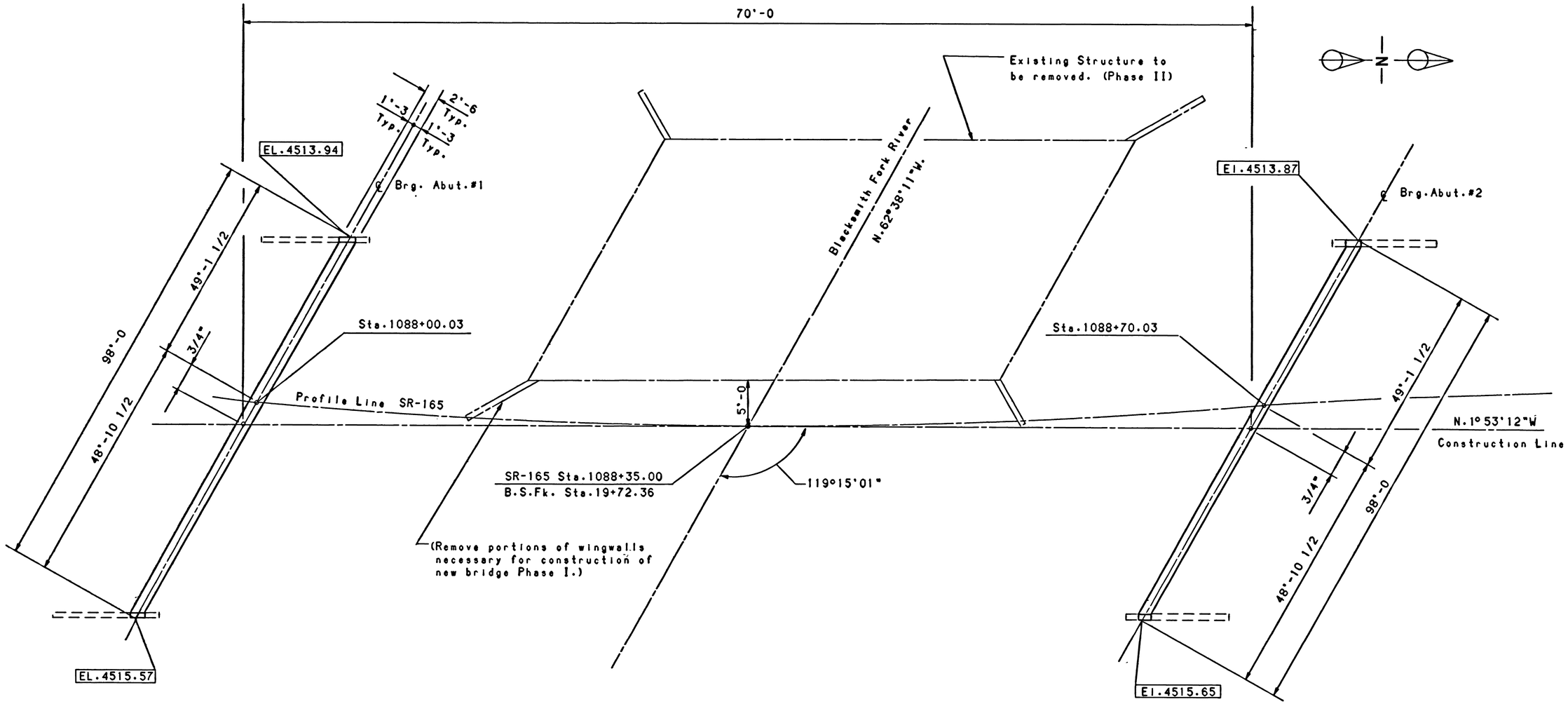
NO	BY	DATE	REMARKS

REVISIONS

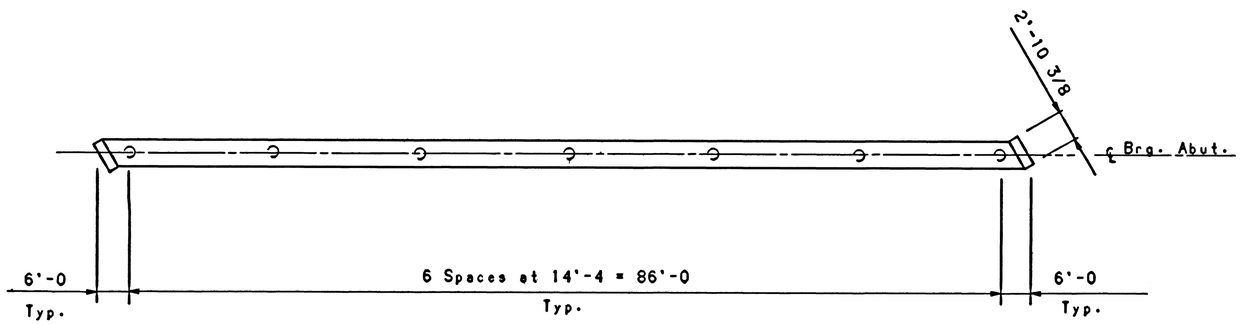
UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY UTAH
STRUCTURES DIVISION

CONCRETE PILE DETAILS

DESIGN TJW 3-2-90	CHECK GJ 7/16/90		088+35.00
DRAWN BY 4-26-90	CHECK TJW 5-22-90		STATION
QUANT BY 4-26-90	CHECK TJW 5-22-90		CACHE COUNTY
APPROVAL RECOMM 7-2-90	Raymond Cook CONSTRUCTION ENGR		DRG NO
APPROVED 7-19-90	CHIEF STRUCTURAL ENGR		F-568
RS-0540(1) PROJECT NUMBER			SHT 3 OF 13



FOUNDATION PLAN



PILE LAYOUT

NOTES:

1. Elevations at the bottom of footing are enclosed in rectangles. e.g. El.4527.98
2. Estimated pile tip elevations shown are approximate and will be verified at the time of construction in accordance with the specifications.
3. All piles are 12 3/4"Ø.
4. All abutments are parallel to bearing N.62 38"11"W.
5. For pile details see sheet #3.

PILE DATA

LOCATION	Estimated Pile Tip Elev. (Ft.)	Elev. of Min. Acceptable Pile Penetration (Ft.)	Allowable Pile Load (Kips)	Calculated Pile Load (Kips)
Abut.#1	4478	4482	270	265
Abut.#2	4451	4454	270	265

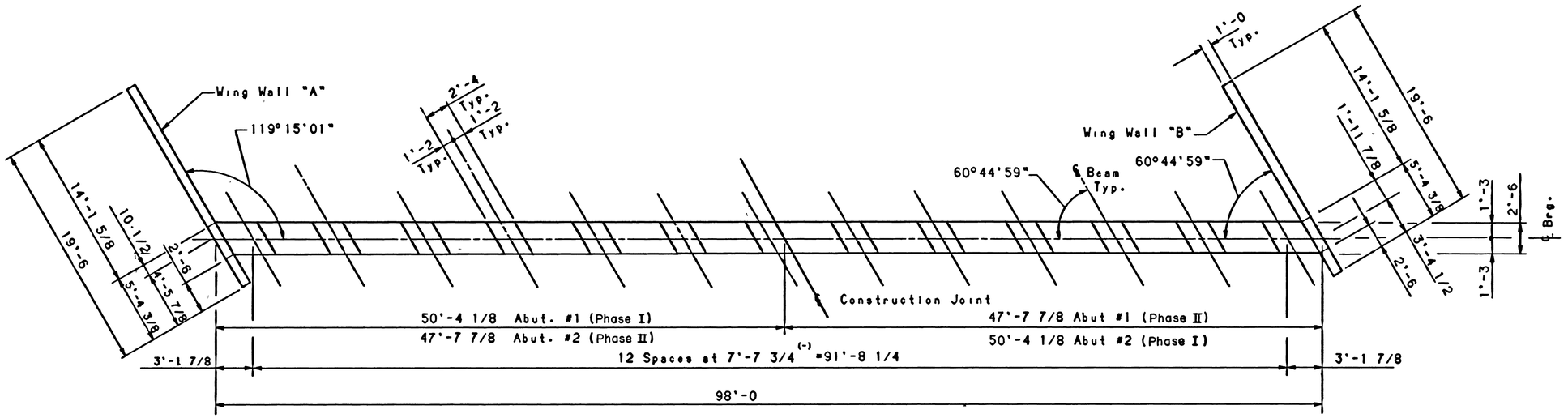
NO.	BY	DATE	REMARKS
			REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

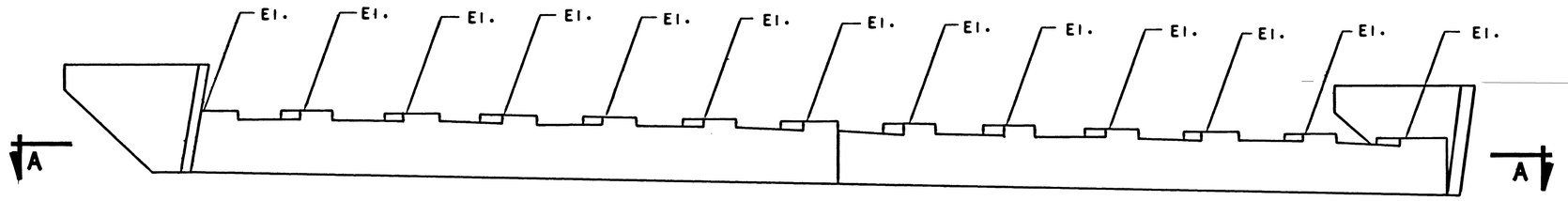
FOUNDATION PLAN & PILE LAYOUT

DESIGN	TJJ 3-3-90	CHECK	GVJ 7/16/90
DRAWN	JTM 4-25-90	CHECK	TJJ 5-24-90
QUANT	JTM 4-25-90	CHECK	TJJ 5-24-90
APPROVAL RECOMM.	7/2/90 DATE	Raymond Cook	Project Leader
APPROVED	7-19-90 DATE		Chief Structural Engr.

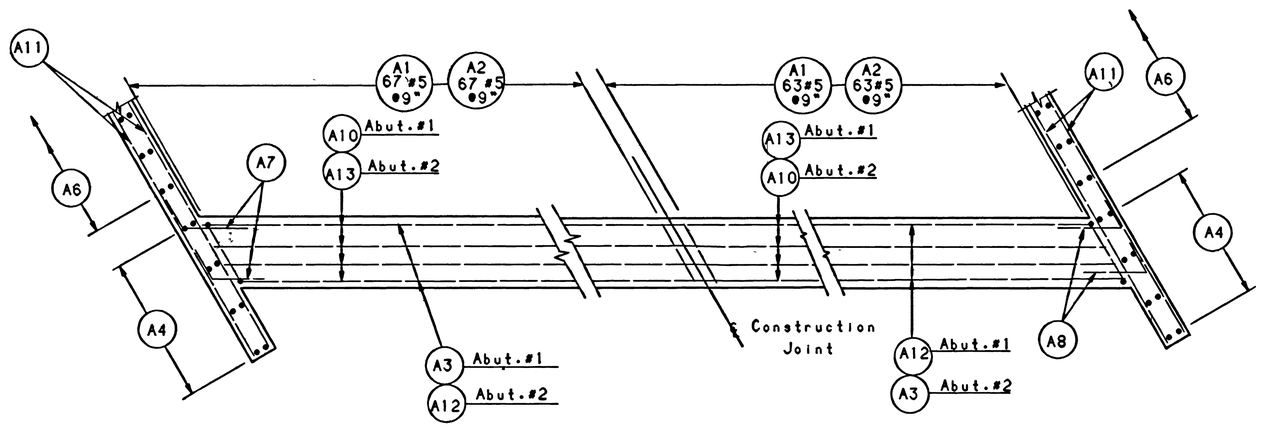
1088+35.00 STATION
CACHE COUNTY
DRG. NO. F-568
RS-0540(1) PROJECT NUMBER
SHT. 4 OF 13



PLAN



ELEVATION



SECTION A-A

NOTES:

1. See sheet #6 for key plan, section thru abutment and wing wall detail.
2. All wing wall bars are each face except as noted.
3. All splices shall be alternated.
4. See sheet #4 for pile layout.
5. Mechanical butt splice (see section 508.07 of specifications) required at center line construction joint for A13 bars. Extend A10 bars 12" beyond joint and splice to A13 bars.

CONCRETE QUANTITIES CLASS AA (AE)		
LOCATION	ABUT. #1	ABUT. #2
Abutment	37.7 cu.yd.	37.7 cu.yd.
Wing Wall	7.5 cu.yd.	7.5 cu.yd.
TOTAL	45.2 cu.yd.	45.2 cu.yd.

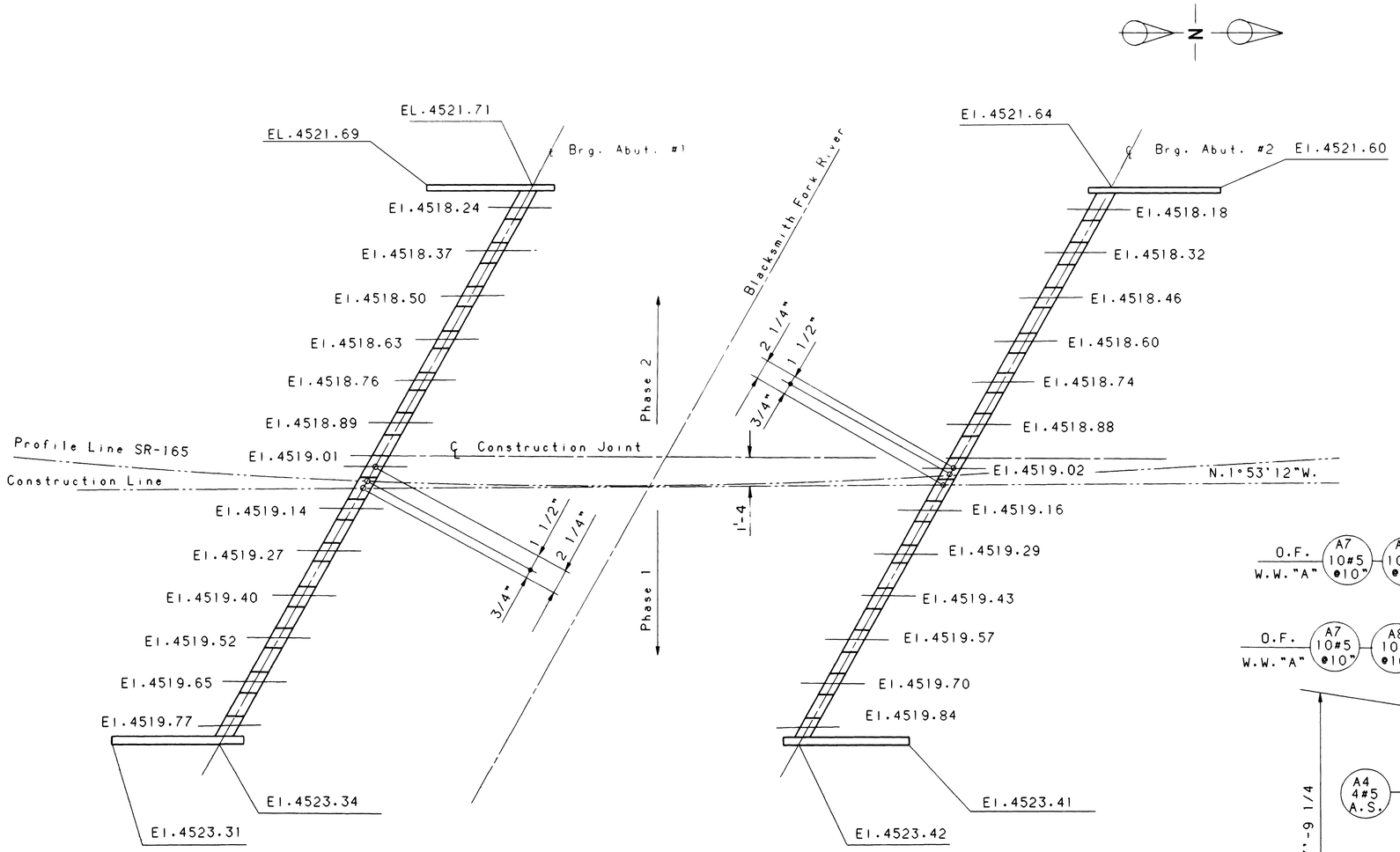
UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

ABUTMENT DETAILS

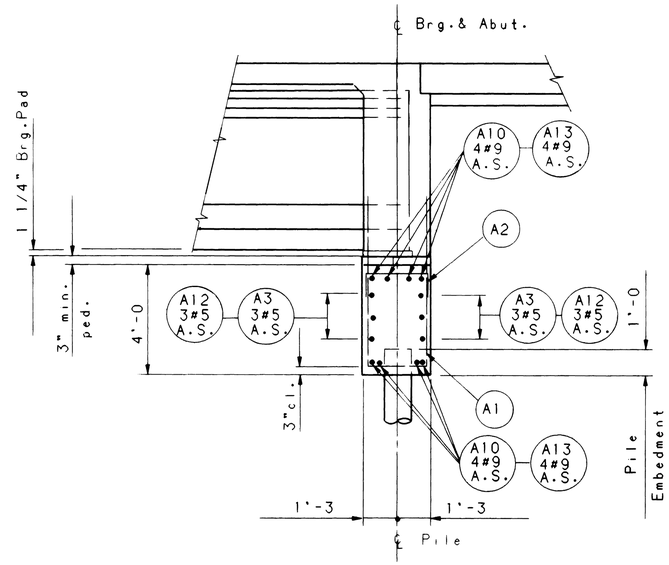
DESIGN TJJ 3-10-90	CHECK C/T. 7/16/90	1088+35.00		
DRAWN JTM 4.25.90	CHECK TJJ 6-1-90			
TRACED JTM 4.25.90	CHECK TJJ 6-1-90	STATION		
APPROVAL RECOM. 7/2/90 DATE	Raymond Clark STATE ENGR	CACHE COUNTY		
APPROVED 7-19-90 DATE	J. Lynn Peterson CHIEF STRUCTURAL ENGR	DRG. NO. F-568		
RS-0540(1) PROJECT NUMBER		SHT. 5 OF 13		

NO.	BY	DATE	REMARKS

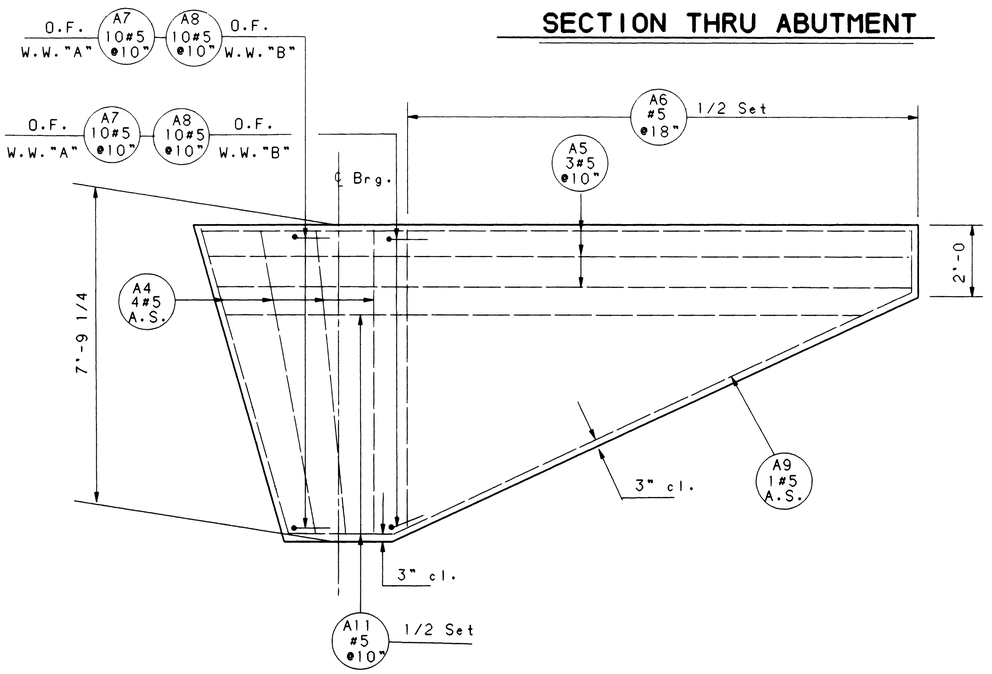
REVISIONS



KEY PLAN



SECTION THRU ABUTMENT



WING WALL DETAIL

NOTES:

1. See sheet #5 for concrete quantities.
2. All elevations in key plan are at top of Wingwall and top of pedestal.
3. Bridge seat bearing area (2" larger than bearing pad) shall be finished high and rubbed or ground level to elevation shown ± 1/16". No grouting.
4. O.F. is outside face.
5. All wingwall bars are each face except as noted.
6. All splices shall be alternated.

NO.	BY	DATE	REMARKS

REVISIONS

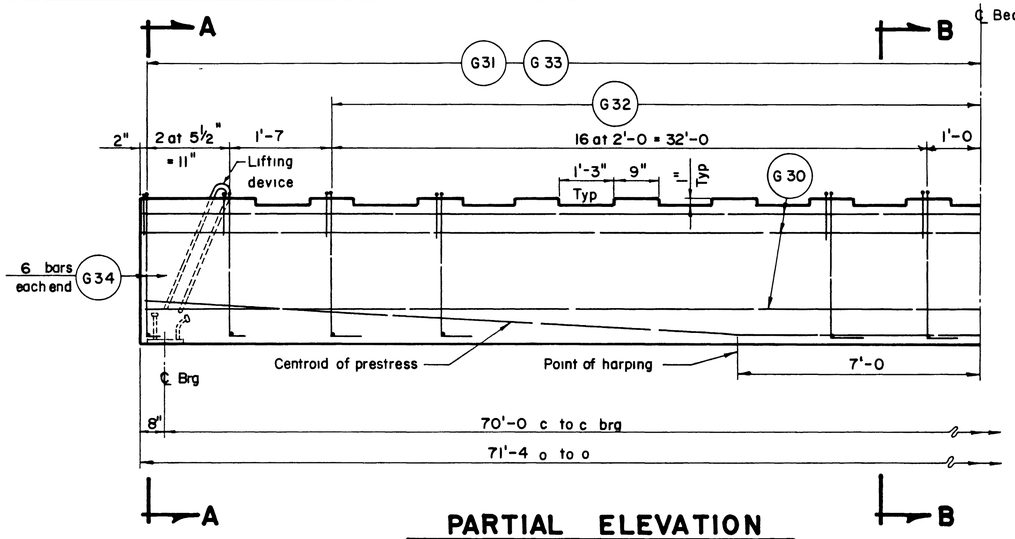
UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

ABUTMENT DETAILS

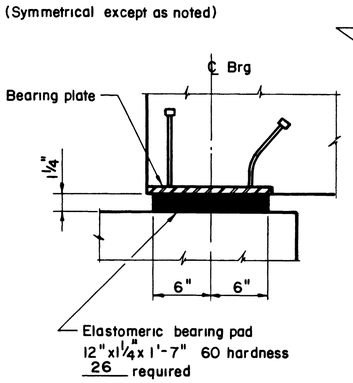
DESIGN	TJJ 3-16-90	CHECK	G.T. 7/16/90	1088+35.00
DRAWN	J.T.M. 4-28-90	CHECK	TJJ 6-1-90	STATION
QUANT.	J.T.M. 4-28-90	CHECK	TJJ 6-1-90	CACHE COUNTY
APPROVAL RECOMM.	7/12/90 DATE	Raymond Cook BRDG. ENGR.		DRG. NO.
APPROVED	7-19-90 DATE	J. T. Thompson CHIEF STRUCTURAL ENGR.		F-568

RS-0540(1)
PROJECT NUMBER

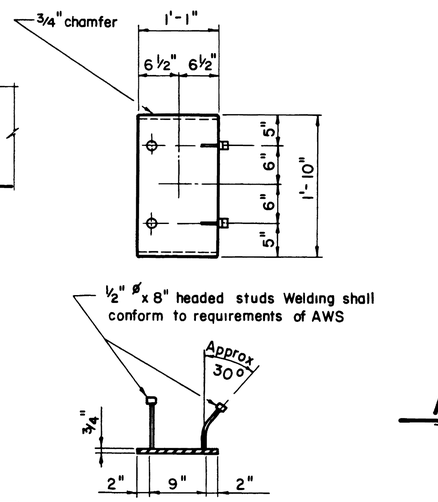
SHT. 6 OF 13



PARTIAL ELEVATION

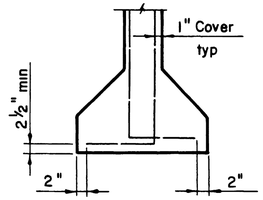


BEARING DETAIL



BEARING PLATE DETAIL

G 31 bars may be eliminated provided G 32 bars are modified and placed as shown below



ALTERNATE BAR PLACEMENT

REINFORCING STEEL SCHEDULE

MARK	SIZE NO	LENGTH	SKETCH
G 30	5	71'-0"	
G 31	4	1'-6"	
G 32	5	5'-1"	3" 10" 4'-0"
G 33	4	4'-4"	10" 9" 1'-2" 1
G 34	5	4'-6"	3" 3" 4'-0"

GENERAL NOTES

1 - Unless otherwise shown, all dimensions are out to out of bars

2 - Threaded rods and elastomeric bearing pads to be furnished by the beam fabricator. Include cost in cost of prestressed concrete members

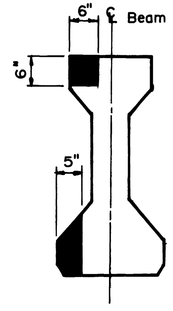
3 - Bar #G 31 shall be placed immediately above lower row of prestressing strands

4 - Prestressing strand for pretensioned members shall not exceed ½" diameter

5 - Place bearing plates and pads perpendicular to beam ℄

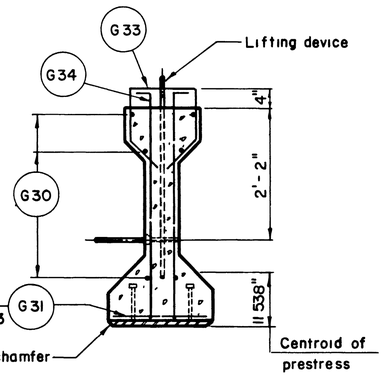
6 - Reinforcing bars shall conform to AASHTO M 31 grade 60

7 - Beam ends (including bearing plates) shall be sloped as required by profile See sheet No 1

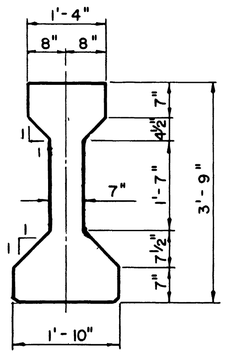


END ELEVATION

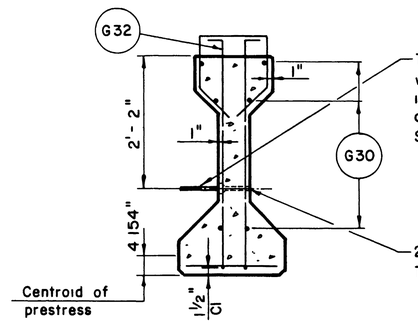
(Typ Block-out at Abut only)



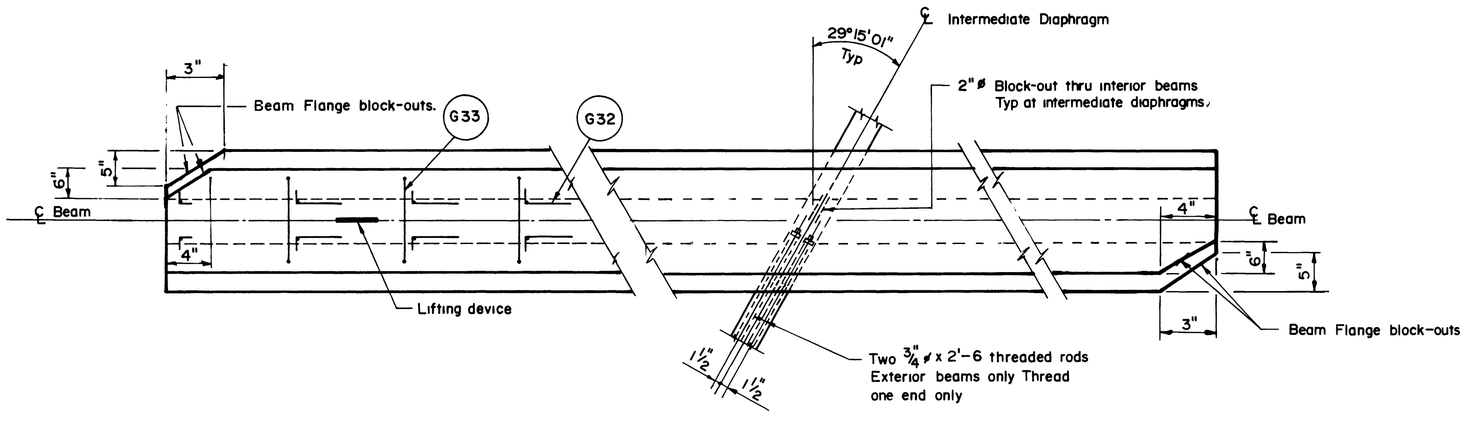
SECTION A-A



TYPICAL SECTION



SECTION B-B



PARTIAL PLAN

A.A.S.H.T.O. TYPE III BEAM

Final prestressing forces
after losses = 613 Kips
f'ci = 4000 psi
f'c = 5000 psi
2 Exterior beams required
11 Interior beams required

Min area prestressing steel = 1 87 sq. in

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY UTAH
STRUCTURES DIVISION

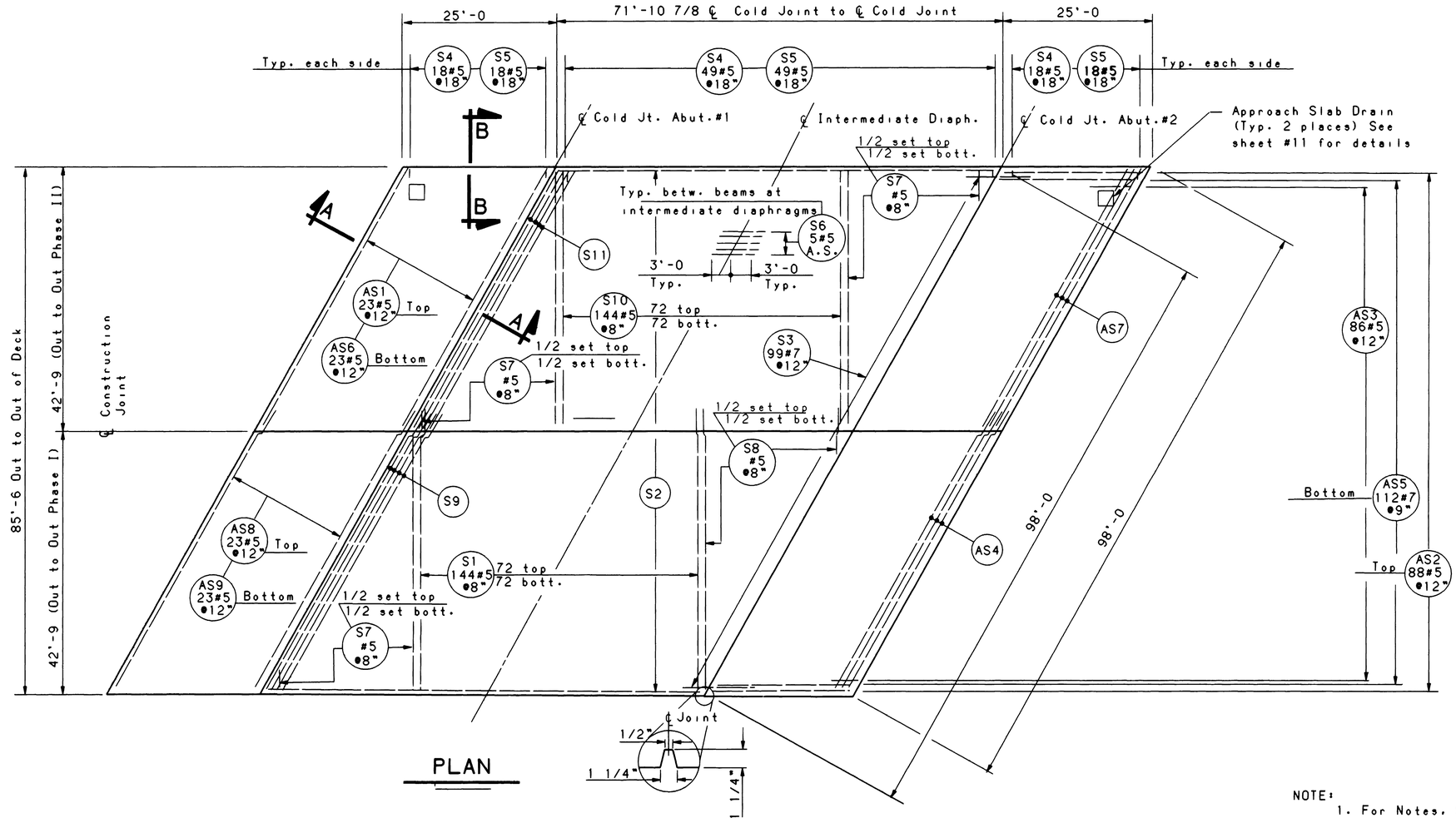
PRESTRESSED BEAM DETAILS

DESIGN	TJJ 2-8-90	CHECK	CJT 7/16/90	1088+35 00
DRAWN	BY 5-12-90	CHECK	TJJ 5-22-90	STATION
QUANT	BY 5-12-90	CHECK	TJJ 5-22-90	CACHE COUNTY
APPROVAL RECOMM	7/2/90 DATE	Raymond Cook GROUP LEADER		DRG. NO F-568
APPROVED	7-19-90 DATE	CHIEF STRUCTURAL ENGR.		SHT 7 OF 13

RS-0540(1) PROJECT NUMBER

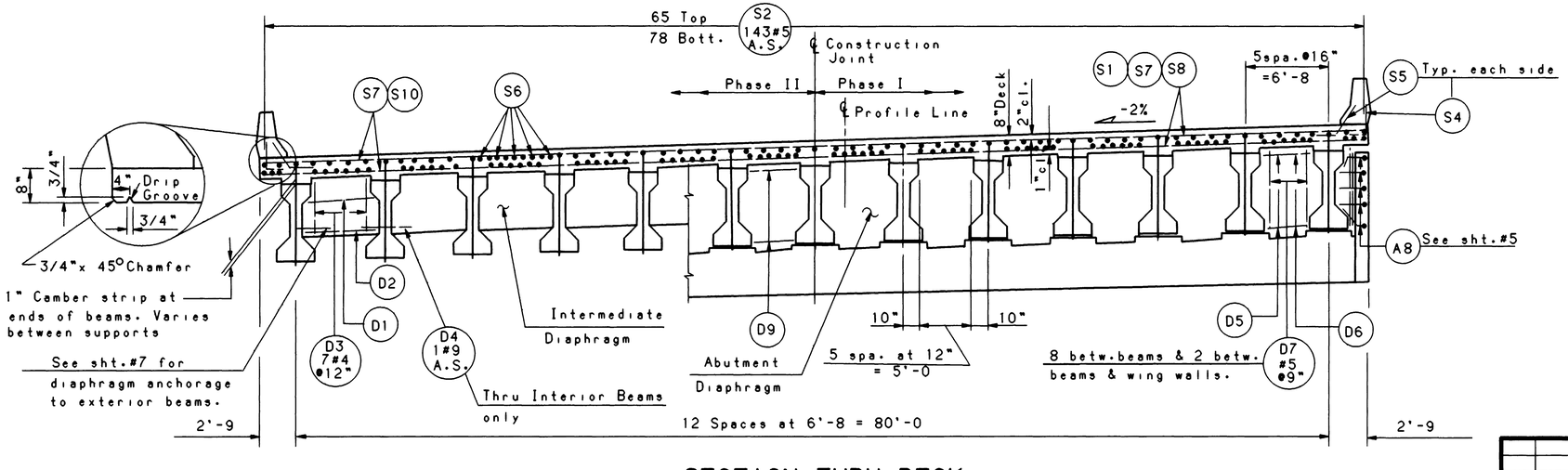
NO	BY	DATE	REMARKS

REVISIONS



PLAN

NOTE:
1. For Notes, Sections and Details, see sheet #9.



SECTION THRU DECK

CONCRETE QUANTITIES CLASS AA (AE)	
LOCATION	
Deck Slab	162.2 cu.yd.
Approach Slabs	178.9 cu.yd.
Intermediate Diaphragm	5.3 cu.yd.
Abutment Diaphragms	54.6 cu.yd.
TOTAL	401.0 cu.yd.

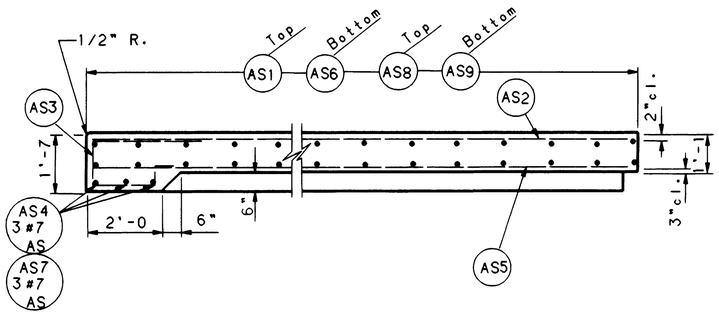
UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

DECK PLAN & SECTION

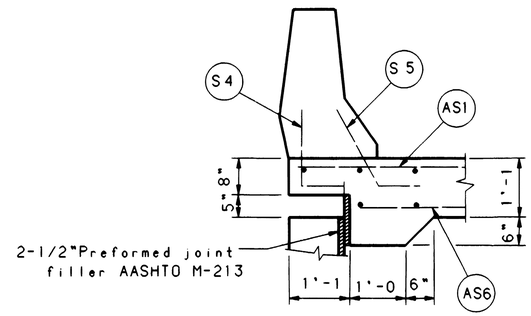
DESIGN TJW 3-13-90	CHECK GJ 7/16/90			1088+35.00
DRAWN J.T.M. 5-4-90	CHECK TJW 5-23-90			STATION
COUNT JB 5/14/90	CHECK TJW 5-23-90			CACHE COUNTY
APPROVAL RECOMM. 7/2/90 DATE	Ronald Cook STRUCTURES ENGINEER			DRG. NO.
APPROVED 7-17-90 DATE	STATE STRUCTURAL ENGINEER			F-568
RS-0540 (1) PROJECT NUMBER				SHT. 8 OF 13

NO	BY	DATE	REMARKS

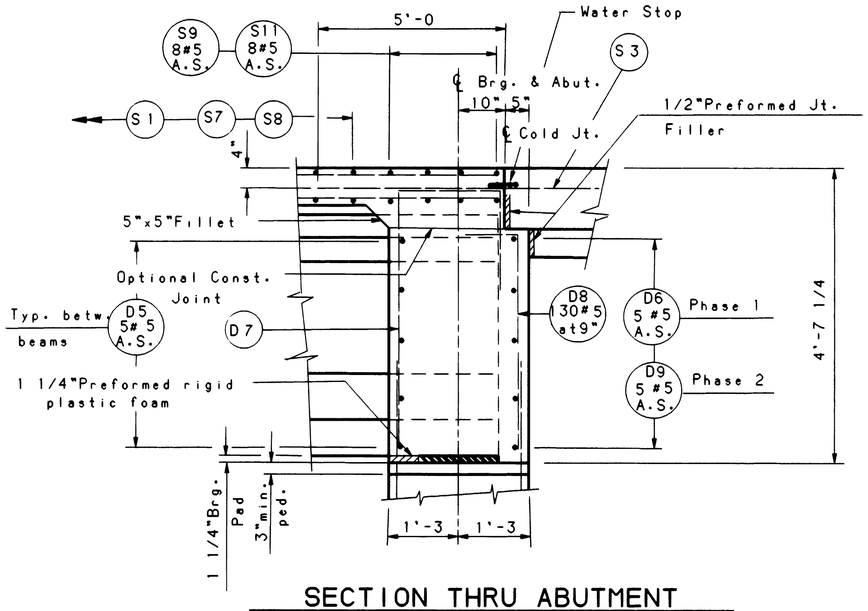
REVISIONS



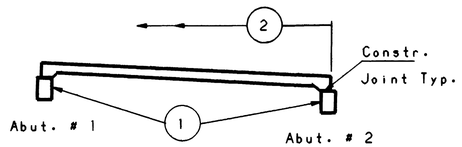
SECTION A-A



SECTION B-B



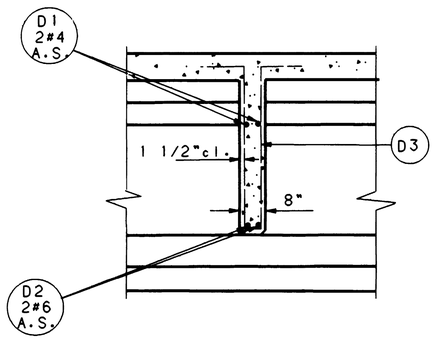
SECTION THRU ABUTMENT



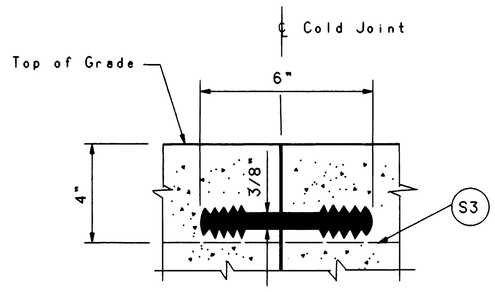
1- Number designates placing sequence.

2- Arrow designates required direction of placement.

DECK PLACING SEQUENCE



SECTION THRU INTER. DIAPHRAGM



WATER STOP DETAIL

NOTES

1. All diaphragms are typical each bay.
2. All beams are A.A.S.H.T.O. Type III prestressed concrete.
3. All splices shall be alternated.
4. The estimated concrete quantity for the camber strip is based upon the beam profile being a straight line and is included in the "Deck Slab" concrete quantity. It is the responsibility of the contractor to obtain beam camber information from the beam fabricator to determine the actual quantity to be used.
5. Water stop shall be turned up 3" into parapet on both ends.
6. The contractor shall be responsible to provide concrete deck forms that will accomodate the variations between the camber of the prestressed concrete beams and the profile grade.
7. The use of stay-in-place deck forms shall not be allowed on this structure.

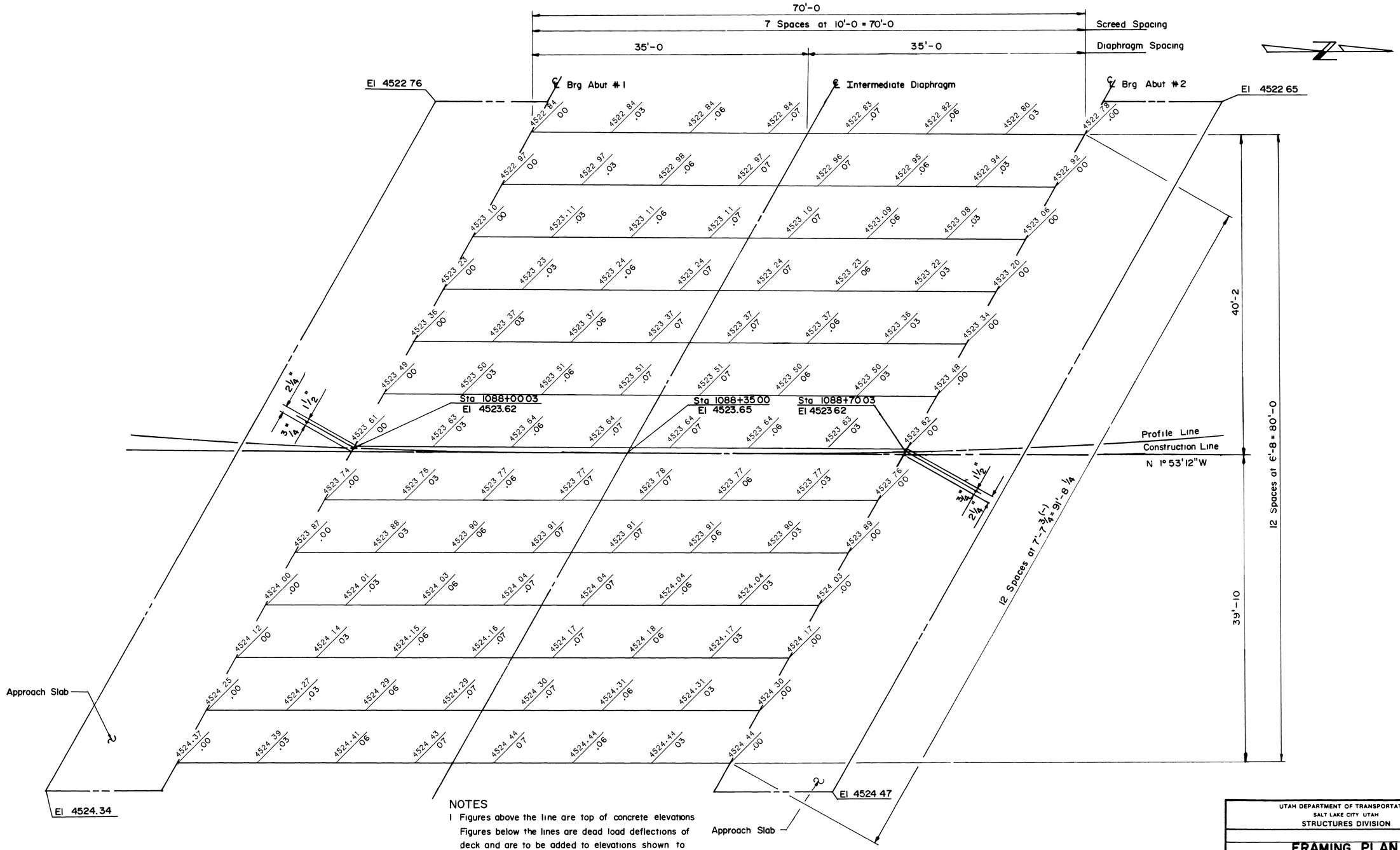
NO.	BY	DATE	REMARKS

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

DECK SECTIONS

DESIGN T.J.J. 2-12-90	CHECK G.F. 7/16/90		1088+35.00
DRAWN J.T.M. 5.4.90	CHECK T.J.J. 5-23-90		
QUANT. JB 5/14/90	CHECK T.J.J. 5-23-90		STATION
APPROVAL RECOMM. 7/2/90 DATE	Raymond Cooke STRUCTURES ENGR.		CACHE COUNTY
APPROVED 7-19-90 DATE	J. T. Thompson CHIEF STRUCTURAL ENGR.		DRG. NO. F-568
RS-0540 (1) PROJECT NUMBER			SHT. 9 OF 13



NOTES

1 Figures above the line are top of concrete elevations
Figures below the lines are dead load deflections of deck and are to be added to elevations shown to obtain screed elevations
2 All elevations are indicated at finish grade
3 All longitudinal dimensions are typical along beam lines and construction lines

NO	BY	DATE	REMARKS

REVISIONS

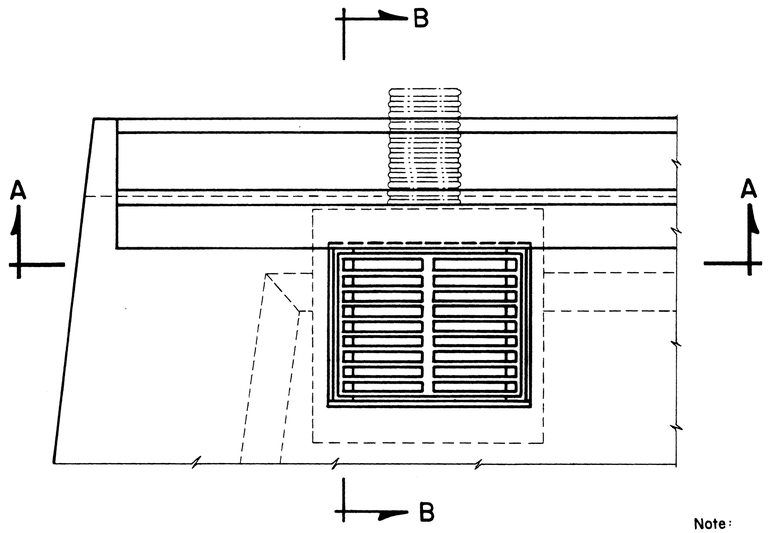
UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY UTAH
STRUCTURES DIVISION

FRAMING PLAN & SCREED ELEVATIONS

DESIGN	TJJ 5-4-90	CHECK	CJ 7/16/90
DRAWN	B.Y 5-14-90	CHECK	TJJ 5-21-90
QUANT	B.Y 5-14-90	CHECK	TJJ 5-21-90
APPROVAL RECOMM	7/2/90 DATE	Raymond Cook PROJECT LEADER	
APPROVED	7-19-90 DATE	W. L. Henderson CHIEF STRUCTURAL ENGR	

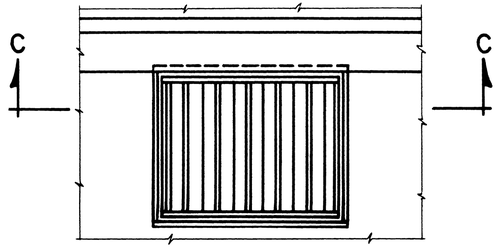
STATION 1088+35 00
COUNTY CACHE
DRG NO F-568
SHT 10 OF 13

RS-0540(1)
PROJECT NUMBER

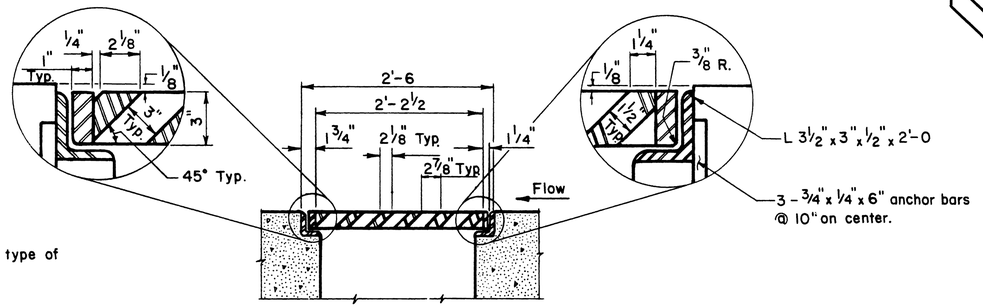


TYPICAL PLAN

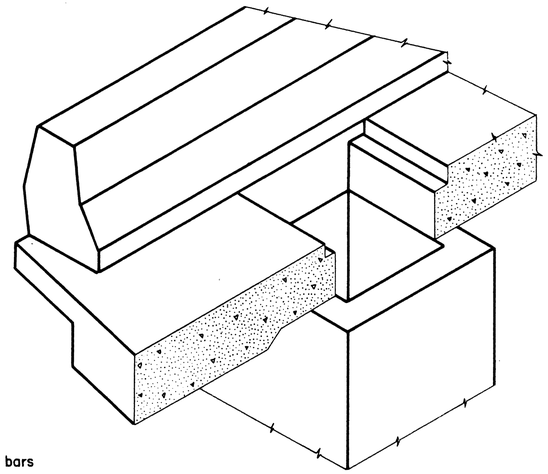
(SHOWING STANDARD GRATE)



PLAN



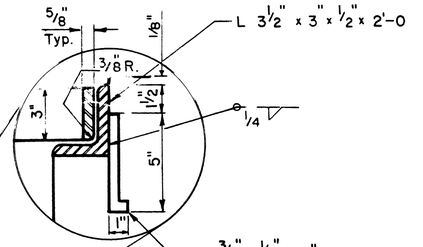
SECTION C-C

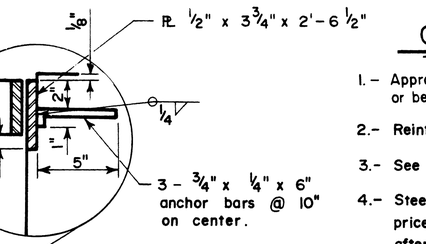


ISOMETRIC

Note:
See Quantities below for type of grating req'd.

BICYCLE SAFE GRATE





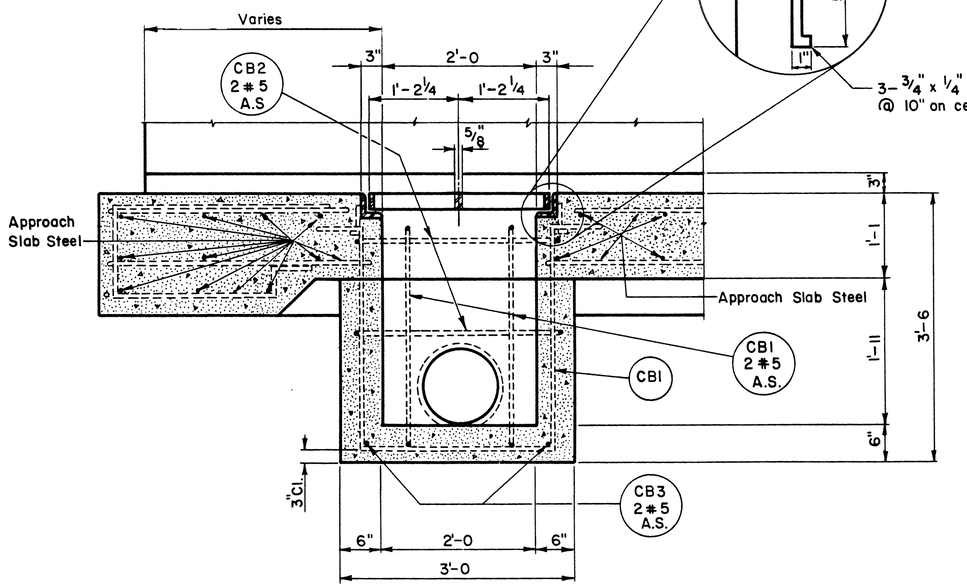
GENERAL NOTES

1.- Approach slab reinforcing steel shall be field cut or bent to clear approach slab drain as shown.

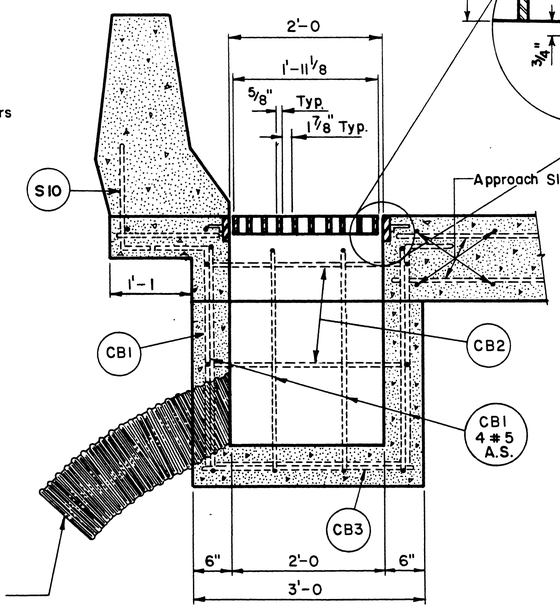
2.- Reinforcing steel shall be epoxy coated.

3.- See deck sheet for actual location of drains.

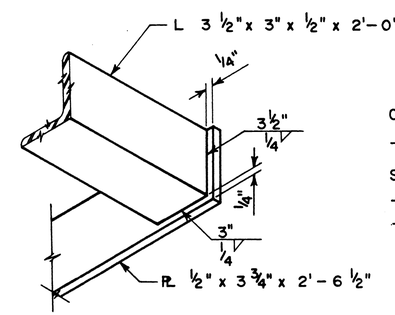
4.- Steel angles and grating are included in the contract price for structural steel and shall be hot-dip galvanized after fabrication in accordance with the specifications, A.S.T.M. A-123.



SECTION A-A



SECTION B-B



DETAIL OF CORNER OF FRAME

QUANTITIES

Concrete Quantities Class AA Concrete (AE)

2 Catch Basins @ .5 Cu. Yds. each = 1.0 Cu. Yds.

Structural Steel Quantity.

2 Bicycle safe grates @ 410 Lbs each = 820 Lbs.

____ Standard grates @ 221 Lbs each = _____

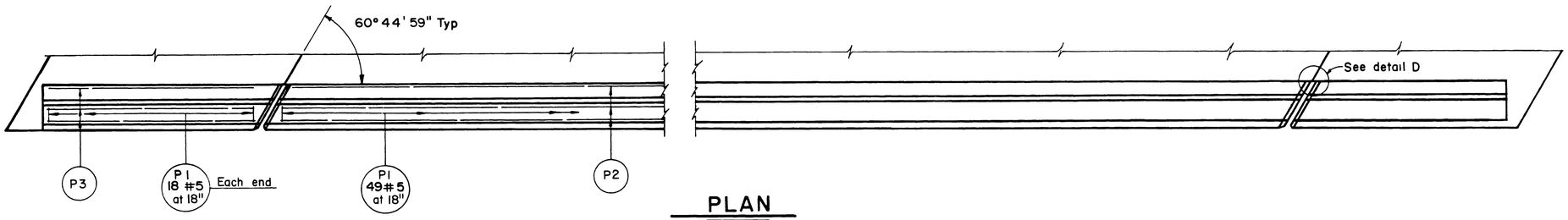
NO	BY	DATE	REMARKS

REVISIONS

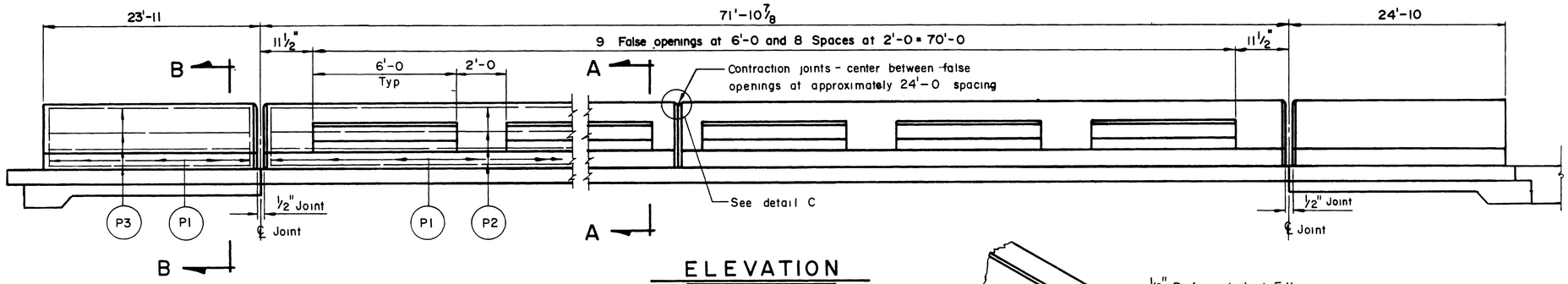
UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

APPROACH SLAB DRAIN DETAILS

DESIGN TJJ 3-22-90	CHECK C.J.T. 7/16/90		
DRAWN B.Y. 3-27-90	CHECK TJJ 5-21-90	1088+35.00	STATION
QUANT B.Y. 3-27-90	CHECK TJJ 5-21-90	CACHE	COUNTY
APPROVAL RECOMM 7/2/90 DATE	Raymond Cook TRAFFIC ENGINEER	DRG. NO.	
APPROVED 7-19-90 DATE	J. T. Christensen CHIEF STRUCTURAL ENGR.	F-568	
RS-0540(1) PROJECT NUMBER		SHT 11 OF 13	

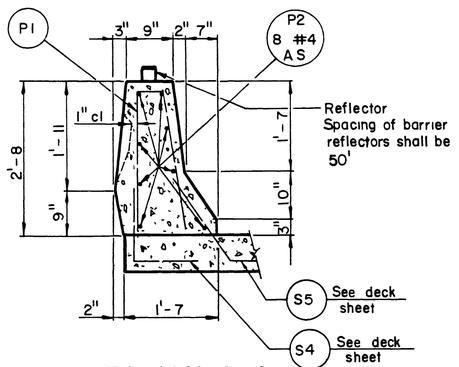


PLAN

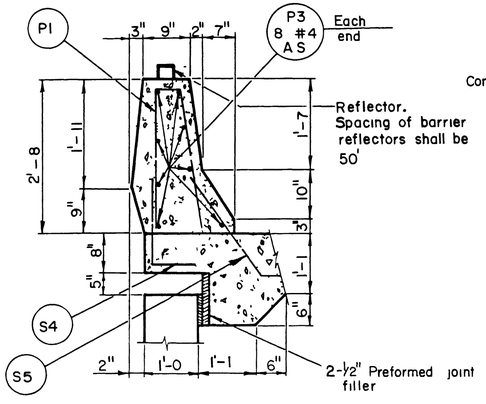


ELEVATION

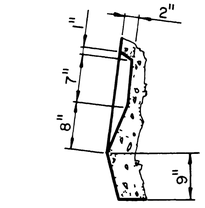
(ALL DIMENSIONS SHOWN ARE ALONG EDGE OF DECK)



SECTION A-A

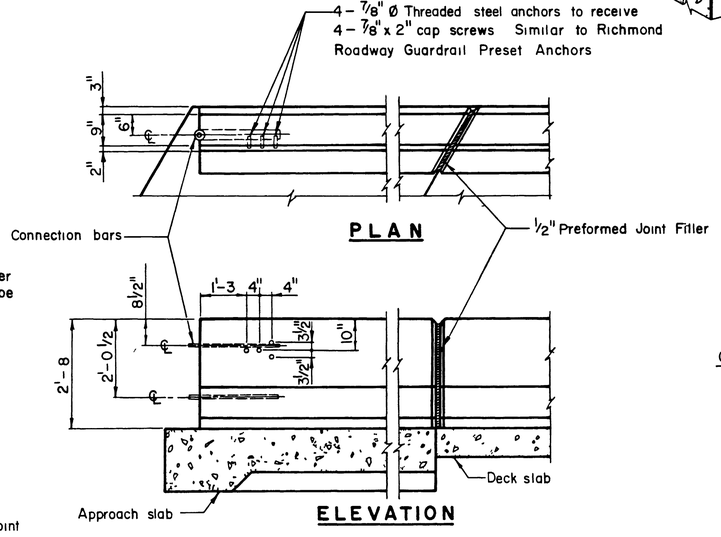


SECTION B-B

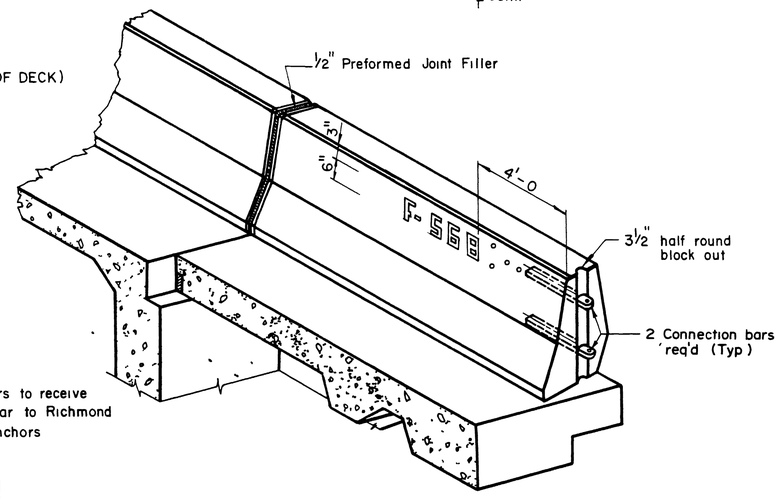


FALSE OPENING

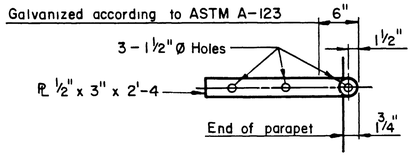
(PARTIAL SECTION)



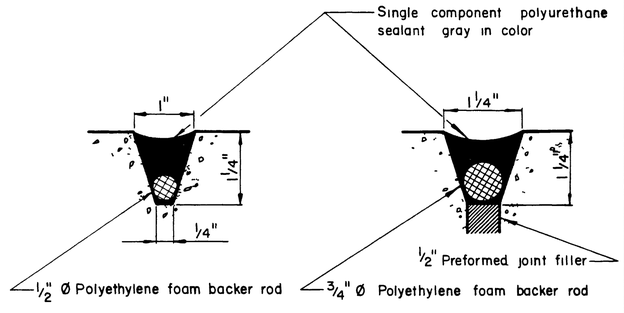
PARAPET END DETAILS



ISOMETRIC



CONNECTION BAR DETAIL

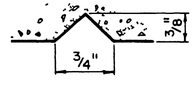


DETAIL C

DETAIL D

GENERAL NOTES

1. All reinforcing steel splices shall be alternated
2. Cover to reinforcing steel shall be 1 1/2" min unless noted otherwise
3. Sealant and foam backer rod shall extend from deck to top of parapet on the inside parapet face, and across top of parapet
4. Place contraction joint on sides and top of parapet
5. Drawing number to be located on right-hand side of approach parapet



TYPICAL SECTION THRU DRWG. NUMBER

Concrete Quantities for all parapets
268 Cu Yds Class AA (AE)

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY UTAH
STRUCTURES DIVISION

PARAPET DETAILS

DESIGN	TJW 8-19-90	CHECK	GJ 7/16/90	1088+35.00	
DRAWN	B.Y 5-11-90	CHECK	TJW 5-24-90		
QUANT	B.Y 5-11-90	CHECK	TJW 5-24-90	STATION	
APPROVAL RECOMM	7/2/90 DATE	Raymond Cook GROUP LEADER		CACHE	
APPROVED	7-19-90 DATE	H. L. Christman CHIEF STRUCTURAL ENGR.		COUNTY	
				DRG NO	F-568
	RS-0540(1) PROJECT NUMBER			SHT	12 OF 13

NO	BY	DATE	REMARKS
			REVISIONS

MARK	LOCATION	SIZE NO.	NO. BARS	LENGTH	TOTAL LENGTH	SKETCH A	B	C
A1	ABUTMENT	5	260	15'-1	3921'-8	2'-5	6'-4	6'-4
A2	ABUTMENT	5	260	4'-5	1148'-4	2'-5	1'-0	1'-0
A3	ABUTMENT	5	12	55'-3	663'-0	2'-7 / 52'-8 / 1 SPLICE REQ'D		
A4	ABUTMENT	5	32	7'-4	234'-8			
A5	ABUTMENT	5	24	18'-6	444'-0			
A6	ABUTMENT	5	40	8'-8	346'-8	7'-1 / 1'-7 / CUT LINE / 1'-7 / 7'-1 / 10 BARS PER SET / 4 SETS REQ'D		
A7	ABUTMENT	5	40	4'-5	176'-8	1'-2 / 1'-0 / 3'-3 / 0'-7		
A8	ABUTMENT	5	40	4'-5	176'-8	1'-0 / 1'-2 / 3'-3 / 0'-7		
A9	ABUTMENT	5	8	14'-11	119'-4			
A10	ABUTMENT	9	16	57'-9	924'-0	7'-6 / 50'-3 / 1 SPLICE REQ'D		
A11	ABUTMENT	5	28	18'-11	529'-8	16'-6 / 2'-5 / CUT LINE / 2'-5 / 16'-6 / 7 BARS PER SET / 4 SETS REQ'D		
A12	ABUTMENT	5	12	48'-8	584'-0	2'-7 / 46'-1 / 1 SPLICE REQ'D		
A13	ABUTMENT	9	16	53'-7	857'-4	7'-6 / 46'-1 / 1 SPLICE REQ'D		
S1	OECK	5	144	48'-6	6984'-0	2'-6 / 46'-0 / 1 SPLICE REQ'D		
S2	OECK	5	143	74'-0	10582'-0	2'-6 / 71'-6 / 1 SPLICE REQ'D		
S3	DECK	7	198	10'-0	1980'-0			
S4	DECK	5	170	2'-6	425'-0	1'-0 / 1'-6		
S5	DECK	5	170	2'-10	481'-8	1'-10 / 1'-8 / 1'-0 / 0'-10		
S6	DECK	5	60	6'-0	360'-0			

MARK	LOCATION	SIZE NO.	NO. BARS	LENGTH	TOTAL LENGTH	SKETCH A	B	C	D	E	F
S7	DECK	5	105	43'-0	4515'-0	41'-9	1'-3	1'-3	41'-9	35	3
S8	DECK	5	35	50'-2	1755'-10	45'-4	4'-10	4'-10	45'-4	35	1
						A / B / CUT LINE / C / D / E = NO. BARS PER SET / F = NO. SETS REQ'O.					
S9	OECK	5	16	53'-5	854'-8	1'-1 / 51'-6 / 1 SPLICE REQ'O					
S10	OECK	5	144	42'-5	6108'-0						
S11	OECK	5	16	50'-6	808'-0	1'-1 / 48'-7 / 1 SPLICE REQ'D					
O1	OIAPHRAGM	4	24	6'-7	158'-0						
D2	OIAPHRAGM	6	24	6'-7	158'-0						
D3	OIAPHRAGM	4	84	7'-3	609'-0	0'-8 / 0'-8 / 2'-9 / 0'-5					
D4	OIAPHRAGM	9	11	6'-0	66'-0						
D5	OIAPHRAGM	5	120	5'-9	690'-0						
D6	OIAPHRAGM	5	10	53'-11	539'-2	2'-8 / 51'-3 / 1 SPLICE REQ'O					
O7	OIAPHRAGM	5	200	8'-1	1616'-8	4'-1 / 2'-0 / 2'-0					
D8	OIAPHRAGM	5	260	4'-2	1083'-4	1'-0 / 3'-2					
D9	OIAPHRAGM	5	10	50'-4	503'-4	2'-8 / 47'-8 / 1 SPLICE REQ'D					
AS1	APPR SLAB	5	46	50'-6	2323'-0	1'-1 / 48'-7 / 1 SPLICE REQ'D					
AS2	APPR SLAB	5	176	24'-8	4341'-4						
AS3	APPR SLAB	5	172	7'-9	1333'-0	3'-5 / 0'-6 / 1'-2 / 0'-7 / 2'-1					
AS4	APPR SLAB	7	6	54'-7	327'-6	3'-1 / 51'-6 / 1 SPLICE REQ'D					
AS5	APPR SLAB	7	224	24'-8	5525'-4						
AS6	APPR SLAB	5	46	49'-3	2265'-6	1'-1 / 47'-4 / 1 SPLICE REQ'D					
AS7	APPR SLAB	7	6	50'-5	302'-6	3'-1 / 47'-4 / 1 SPLICE REQ'O					
AS8	APPR SLAB	5	46	53'-5	2457'-2	1'-1 / 51'-6 / 1 SPLICE REQ'D					
AS9	APPR SLAB	5	46	52'-2	2399'-8	1'-1 / 50'-3 / 1 SPLICE REQ'D					
CB1	SLAB ORAIN	5	12	9'-4	112'-0	0'-8 / 0'-8 / 2'-9 / 2'-6					

MARK	LOCATION	SIZE NO.	NO. BARS	LENGTH	TOTAL LENGTH	SKETCH A	B	C
CB2	SLAB DRAIN	5	4	11'-4	45'-4	1'-0 / 2'-7 / 2'-7		
CB3	SLAB DRAIN	5	4	2'-6	10'-0			
P1	PARAPET	5	170	5'-3	892'-6	0'-5 / 2'-5 / 5'-2 / 0'-3		
P2	PARAPET	4	16	73'-8	1178'-8	71'-6	2'-2	1
P3	PARAPET	4	32	26'-8	853'-4	24'-6	2'-2	1

C = NO SPLICES

SUMMARY OF EPOXY COATED BARS

2799'-0	OF NUMBER	4	BARS AT 0.668 LBS/FT =	1869.7 LBS
61830'-10	OF NUMBER	5	BARS AT 1.043 LBS/FT =	64489.6 LBS
158'-0	OF NUMBER	6	BARS AT 1.502 LBS/FT =	237.3 LBS
8135'-4	OF NUMBER	7	BARS AT 2.044 LBS/FT =	16628.6 LBS
1847'-4	OF NUMBER	9	BARS AT 3.400 LBS/FT =	6280.9 LBS
			TOTAL	89506.0 LBS

NOTES:

ALL BARS ARE EPOXY COATED.

REINFORCING STEEL DIMENSIONS ARE OUT TO OUT OF BAR UNLESS OTHERWISE SPECIFIED.

SPLICES MAY BE OMITTED AT FABRICATORS OPTION...HOWEVER, IN SUCH CASE, FABRICATOR ASSUMES RESPONSIBILITY FOR FIT.

SPLICE A10 TO A13 WITH A MECHANICAL BUTT SPLICE (SEE SECTION 508.07 OF SPECIFICATIONS)

NO.	BY	DATE	REMARKS
			REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE CITY, UTAH
STRUCTURES DIVISION

REINFORCING STEEL SCHEDULE

DESIGN TJJ 6-29-90 CHECK G.F. 7/16/90 DWG. NO. F-568
DRAWN TJJ 6-29-90 CHECK J.T.M. 6.29.90
QUANT. TJJ 6-29-90 CHECK J.T.M. 6.29.90
APPROVAL RECOMM. 7/2/90 DATE Raymond Cook GROUP LEADER — 1088+35.00 STATION
APPROVED 7-19-90 DATE H. G. Christensen CHIEF STRUCTURAL ENGINEER — CACHE COUNTY
PROJECT NUMBER RS-0540(1) — 13 OF 13

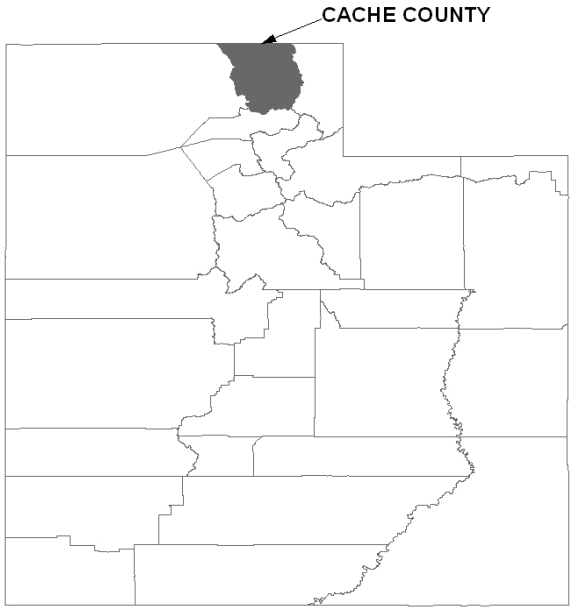
BLOCK 2 SIZE: 36.0" X 24.0" - REBAR PLOT -- REBAR PLOT TJJF568R; BLACKSMITH FORK RIVER BRIDGE MAY 1990 AUTH:559701 9999

APPENDIX D - FLOOD LEVEL ANALYSIS CALCULATIONS

FLOOD INSURANCE STUDY

CACHE COUNTY, UTAH
AND INCORPORATED AREAS

Community Name	Community Number
AMALGA, TOWN OF	490013
CACHE COUNTY (UNINCORPORATED AREAS)	490012
CLARKSTON, TOWN OF	490014
CORNISH, TOWN OF	490015
HYDE PARK, TOWN OF	490016
HYRUM, CITY OF	490017
LEWISTON, CITY OF	490018
LOGAN, CITY OF	490019
MENDON, CITY OF	490020
MILLVILLE, TOWN OF	490021
NEWTON, TOWN OF	490022
NIBLEY, TOWN OF	490023
NORTH LOGAN, CITY OF	490024
PARADISE, TOWN OF	490025
PROVIDENCE, CITY OF	490226
RICHMOND, CITY OF	490027
RIVER HEIGHTS, CITY OF	490240
SMITHFIELD, CITY OF	490029
TRENTON, TOWN OF	490030
WELLSVILLE, CITY OF	490031



EFFECTIVE DATE: MAY 24, 2011

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
49005CV000A

NOTICE TO

FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS report components.

Selected Flood Insurance Rate Map panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels (e.g., floodways, cross sections). In addition, former flood hazard zone designations have been changed as follows:

Old Zone(s)	New Zone
A1 through A30	AE
B	X
C	X

Initial Countywide FIS Effective Date: May 24, 2011

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EXHIBITS

Exhibit 1 - Flood Profiles

Blacksmith Fork	Panels 01P-04P
Logan River	Panels 05P-12P
Logan River - Without Consideration of Levee	Panel 13P
Spring Creek – City of Providence	Panels 14P-21P

Exhibit 2 - Flood Insurance Rate Map Index
Flood Insurance Rate Map

FLOOD INSURANCE STUDY
CACHE COUNTY, UTAH, AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the geographic area of Cache County, Utah, including the Cities of Hyrum, Lewiston, Logan, Mendon, North Logan, Providence, Richmond, River Heights, Smithfield and Wellsville; the Towns of Amalga, Clarkston, Cornish, Hyde Park, Millville, Newton, Nibley, Paradise, and Trenton, and the unincorporated areas of Cache County (hereinafter referred to collectively as Cache County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community in its efforts to promote sound floodplain management. Minimum floodplain requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgments

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The original detailed and approximate hydrologic and hydraulic analyses for this study were performed by Rollins, Brown and Gunnell, Inc., for FEMA under Contract No. H-4593. This study was completed in January 1982.

The updated approximate hydrologic and hydraulic analyses for this study were performed by Michael Baker, Jr., Inc., for FEMA under Contract No. HSFEHQ-04-D-0025, task order number HSFE08-05-J-002. This study was completed in December 2009.

1.3 Coordination

Streams requiring detailed study were discussed at a meeting attended by representatives of FEMA, the study contractor, and the city on August 3, 1979. Results of the hydrologic analysis were sent to the U.S. Army Corps of Engineers (COE), the city, and FEMA for review and comment in June 1981. Copies of the work maps showing flood plain delineations were sent to FEMA and the city in February 1982, and a meeting with FEMA and the city was held on February 19, 1982, for discussion and review. The work maps were revised according to the results of the meeting. The final community coordination meeting was held on November 14, 1983, and was attended by representatives of FEMA, the study contractor, and the city. No significant problems were raised at the meeting.

The COE, the U.S. Soil Conservation Service (SCS), the U.S. Geological Survey (USGS), and the Utah Water Research Laboratory (UWRL) were contacted to obtain any information which would be helpful in flood plain delineation.

The results of this countywide study were reviewed at the final Consultation Coordination Officer (CCO) meeting held on February 18, 2010, and attended by representatives of FEMA, the State of Utah, local public entities and the study contractor. All problems raised at that meeting have been addressed in this study.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS report covers the geographic area of Cache County, Utah, including the incorporated areas listed in Section 1.1.

Streams studied by detailed methods were: Logan River, from its emergence from Logan Canyon at State Dam to the Logan corporate limits at 1000 West Street; Spring Creek, from its confluence with Logan River upstream to the Logan corporate limits; and Blacksmith Fork, from its confluence with Logan River upstream to the Logan corporate limits.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected priority development or proposed construction through August 1984.

All other flood hazards within the County were studied by approximate methods.

2.2 Community Description

Cache County, with an area of 1,165 square miles, is located in north-central Utah. The population of Cache County based on the 2000 Census was 91,391 (Reference 1). The populations of the incorporated communities of Cache County are listed in Table 1.

Table 1. Populations of Incorporated Communities in Cache County

Community	1990 Census Population	2000 Census Population
Amalga, Town of	366	427
Clarkston, Town of	645	688
Cornish, Town of	205	259
Hyde Park, Town of	2,190	2,955
Hyrum, City of	4,829	6,316
Lewiston, City of	1,532	1,877
Logan, City of	32,762	42,670
Mendon, City of	684	898
Millville, Town of	1,202	1,507
Newton, Town of	659	699
Nibley, Town of	1,167	2,045
North Logan, City of	3,768	6,163
Paradise, Town of	561	759
Providence, City of	3,344	4,377
Richmond, City of	1,955	2,051
River Heights, City of	1,274	1,496
Smithfield, City of	5,566	7,251
Trenton, Town of	464	449
Wellsville, City of	2,206	2,728

The City of Logan has a population of approximately 42,670 (Reference 1), and is situated in the central portion of Cache County in Cache Valley between the Bear River and the Wasatch Mountains, in northern Utah. The communities of Smithfield and North Logan lie to the north of the city, while River Heights and Providence lie to the south. North Logan and River Heights share common borders with Logan.

Cache Valley is part of the Bear River Basin, which in turn is located in the Great Salt Lake subbasin of the Great Basin. The three major streams in the study area are Spring Creek, Blacksmith Fork, and the Logan River. Spring Creek and Blacksmith Fork are tributaries to the Logan River, while the Logan River is a tributary to the Bear River. All three streams have their headwaters in the Bear River Mountain Range to the east. The streams originate from snowfed springs in the canyons before emerging into the valley area. Blacksmith Fork and Spring Creek have drainage areas of 287 and 19.9 square miles, respectively, at their confluences with the Logan River. The Logan River has a total drainage area of 524 square miles at the Mendon Road bridge.

Elevations of the watersheds range from above 9,000 feet in the mountains down to approximately 4,500 feet in the valley. Precipitation varies from 16 inches at Logan to 50 inches annually in the high elevations. Winter precipitation usually occurs as snow with the normal annual snowpack ranging from 6 to 8 feet in the mountains. Precipitation in the summer usually originates from high-intensity thunderstorms.

Vegetation in the area varies significantly with elevation, slope, and aspect. Subalpine vegetation can be found on the highest elevations, aspen and conifer forest in the high to middle elevations, and oak and sagebrush in the middle to lower elevations. On south-facing slopes, the oak brush may extend into the higher elevations, while on north-facing slopes, the aspen and conifers may extend into the lower elevations. Many of the south-facing slopes are semiarid, while the north-facing slopes support thick stands of timber and underbrush. Native vegetation in the valley area consists of sage and native grasses with stands of cottonwoods and willows along the stream courses.

Extensive residential development has occurred along the Logan River within the corporate limits of the city; there has been some encroachment on the flood plain, particularly in what is known locally as the Island area. Development along the lower reaches of the Logan River has been limited to farmland and pasture, with a few scattered homes near the river. Past development along Blacksmith Fork and Spring Creek has been limited primarily to farmland and pasture, with scattered farmhouses and barns; however, some development of land near the lower reaches of these streams has occurred recently.

2.3 Principal Flood Problems

Flooding in the Logan area can result from heavy spring snowmelt runoff, from rain falling on snow or frozen ground, or from summer cloudburst storms. All three types of flooding have been reported in the Cache Valley area in the past. The larger floods in this century on both the Logan River and Blacksmith Fork have resulted from spring snowmelt runoff. The largest recorded flood on both occurred in the spring of 1907. The Logan River had a recorded peak discharge of 2,450 cubic feet per second (cfs) at the mouth of Logan Canyon, while Blacksmith Fork had a recorded peak discharge of 1,900 cfs just upstream from its canyon mouth. These peak discharges were no coincident peaks. The 1907 flood was equivalent to approximately the 100-year flood on both streams. A flood in the spring of 1971 on the Logan River flooded backyards of residences adjacent to the river; sandbagging was required. This flood had a recorded peak discharge of 1,680 cfs at the canyon mouth and 1,980 cfs at the Mendon Road bridge. The flood had an estimated return period of approximately 10 years. Flooding on Blacksmith Fork in 1971 was minor and caused little damage. The Logan and Blacksmith Fork Rivers most recently reached

flood stage in 2005. The peak discharge recorded at USGS Gage Station 10109000 located along the Logan River above the State Dame was 1,260 cfs. The peak discharge recorded at USGS Gage Station 10113500 for the Blacksmith Fork River for the 2005 event is 1,570 cfs. Other storm events of note are the 1983, 1984 and 1997 events.

Spring Creek is an ungaged stream and information regarding past floods on this stream is very limited. The only flood which has been documented on this stream occurred on August 19, 1959, as a result of a heavy cloudburst. The USGS (Reference 2) estimated a peak discharge of 175 cfs at the canyon mouth, which is approximately equivalent to a 15-year flood. The storm caused flooding and damage in the City of Providence, but there were no reports of damage in the City of Logan.

Cloudbursts are an important source of flooding on Spring Creek at the canyon mouth; however, since these floods generally have a small volume, much of the floodwater dissipates before reaching the corporate limits of Logan. Snowmelt or rain-on-snow is felt to be the more critical cause of floods on Spring Creek within the corporate limits.

2.4 Flood Protection Measures

There are diversion dams that have been constructed on the Logan and Blacksmith Fork Rivers, but these structures have little impact upon the flooding potential for both rivers.

Following the 1971 flood, the COE improved the channel of the Logan River from Main Street to 600 West Street. The carrying capacity of the channel was increased by removal of silt and gravel from the channel and forming low levees. These levees will contain the 1- and 0.2-percent-annual chance flood events, but with a freeboard of less than one foot in some places. FEMA guidelines require three feet of freeboard for the 1-percent-annual chance flood event for artificial levees; thus, the levees were assumed to be ineffective in the analysis. The COE and County also conducted a dredging project in 1997 on the Blacksmith Fork River to improve the conveyance of the waterway.

A levee constructed along the channel of Blacksmith Fork immediately upstream of the Union Pacific Railroad bridge protects a subdivision from the floodwaters of Blacksmith Fork. The levee was evaluated for the "with" and "without" levee condition and it was determined that the two scenarios produced nearly identical water surface elevations. The levees were assumed to be ineffective in the analysis.

There are no other flood control facilities affecting the city authorized or under investigation at the present time. However, nonstructural measures

of flood protection are being utilized to aid in the prevention of future flood damage. These are in the form of land use regulations which control building within the 1-percent-annual-chance event floodplain.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood-hazard data required for this study. Flood events of a magnitude that is expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail in the community.

Detailed Analyses

Both the Logan and Blacksmith Fork Rivers have adequate gaging records for flood-frequency analyses. Frequency analyses were conducted in accordance with the U.S. Water Resources Council Guidelines, Bulletin 17A (Reference 3). The log-Pearson Type III probability distribution was assumed and a regional skew of -0.2 was used in calculations. The Logan River above the State Dam stream gage is located at the upstream limit of the study area and has more than 100 years of record while the Logan River below Blacksmith Fork stream gage is located only a few miles downstream of the study area and has more than 25 years of record. Thus, frequency estimates for the Logan River could be obtained directly from stream gaging records. The 10-percent-chance flood event flood discharge was found to be somewhat larger at the downstream stream gage; however, the 2-, 1- and 0.2-percent-chance flood event discharges were

slightly less. This decrease in the flood peak is most likely due to the attenuating effect of the wide flood plain in the valley area.

The Blacksmith Fork above the Utah Power and Light Company dam stream gage has over 90 years of record, but is located approximately 9 miles upstream from the study area. Therefore, it was necessary to transfer the flood-frequency estimates at the stream gage downstream to the study area. A 1971 USGS open file Report (Reference 4) which provides statistical regression equations relating watershed area and mean elevation to peak discharge for streams in Utah, was used for this transfer.

Spring Creek is the only ungaged stream in the study area. Three different methods for flood-frequency estimation on ungaged streams in the Logan Region were used to estimate the 10-percent-chance flood event for Spring Creek. Two of these methods were developed by the USGS (References 4 and 5) using statistical regressions relating parameters such as area and mean elevation to peak discharge.

The third method used was recently adopted by the Federal Highway Administration (Reference 6) for the design of bridges and culverts. This method also employs statistical regression to relate parameters such as area, change in elevation, and rainfall with peak discharge.

All three regional methods result in adequate predictions of the 10-percent-annual-chance flood event and can be used to obtain estimates up to the 2-percent-chance flood event. However, predictions of the 2-percent-chance flood event vary to some extent between methods. The FHWA method is the only one which can be used to estimate floods greater than the 2-percent-chance flood event. Estimates for the 10-, 4-, and 2-percent-chance flood events as predicted by the three regional methods were plotted on log-normal probability paper along with a 100-year flood estimate obtained using only the FHWA method. A best fit curve was then drawn through the 10- and 4-percent-chance flood events using the regional skew of -0.2 for extrapolation to the 2-, 1- and 0.2-percent-chance flood events. The best fit curve followed quite closely the estimates obtained from the FHWA method for the 2- and 1-percent-chance flood events.

The peak discharge for the Dry Canyon reach was taken the “Dry Canyon Hydrologic Modeling, Sediment Yield and Sediment Transport Analyses, Logan, Utah” report dated October 2006 and prepared by Anderson Consulting Engineers (Reference 7). A HEC-HMS rainfall-runoff hydrologic model was completed to determine the 1-percent-chance-annual flood event for Dry Canyon. The result of the hydrologic modeling, 640 cfs, was then increased by 11% to accommodate for the calculated sediment transport passing through the debris basin. The resulting bulked 1-percent-chance flood event flow of 710 cfs was then

used within the hydraulic analysis for the Dry Canyon storm sewer system.

A summary of drainage area-peak discharge relationships for each stream studied using detailed analyses is shown in Table 2.

Table 2. Summary of Discharges

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (Cubic Feet Per Second) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
Dry Creek					
At Debris Basin Inlet	3.6	--[1]	--[1]	710	--[1]
Logan River					
At State Dam	218	1,670	2,170	2,380	2,880
At Mendon Road	524	1,710	2,130	2,300	2,710
Spring Creek					
At US Highway 89-91	19.9	160	260	300	420
Blacksmith Fork					
At Confluence with Logan River	287	1,070	1,700	2,000	2,750

[1] Data not available

Approximate Analyses

Peak discharges for the streams studied by approximate methods can be found in the December 2009 hydrologic study report performed by Michael Baker, Jr., Inc. (Reference 8). The analysis was completed using regression equations derived in USGS Fact Sheet 124-98 (Reference 9). USGS topographic maps were used to create drainage basins.

3.2 Hydraulic Analyses

Detailed Analyses

Analyses of the hydraulic characteristics of the flooding sources studied in detail in Logan were carried out to provide estimates of the elevations of floods of selected recurrence intervals along each of the flood sources.

Cross sections used for the backwater analyses of the streams studied were obtained by actual field survey. All bridges, dams, and culverts were field checked to obtain elevation data and structural geometry. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles.

Channel roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and based on field observations of the streams and flood plain areas. Roughness values for the main channels and flood plain areas of flood sources are listed in Table 3. Values shown apply to all flood events. Additionally, the roughness values represent the values that were used in the original hydraulic analyses and do not reflect changes that may have occurred since the original studies were completed.

Table 3. Manning's "n" Values

	Roughness Factor (Manning's "n" Values)	
Flooding Source	Main Channel Values	Floodplain Values
Logan River	0.033 - 0.045	0.035 - 0.080
Spring Creek	0.024 - 0.040	0.035 - 0.060
Blacksmith Fork	0.035 - 0.043	0.045 - 0.060

Water-surface elevations of floods of the selected recurrence intervals for the detailed study streams were computed by the use of the COE HEC-2 step-backwater computer program (Reference 10). Flood profiles for the selected recurrence intervals were drawn showing the computed water-surface elevation. Starting water-surface elevations for Spring Creek and the Logan River were determined by normal depth calculations. The starting water-surface elevation for Blacksmith Fork was assumed at critical depth since normal depth calculations were in the supercritical flow regime. Elevation reference marks used in the study are shown on the maps.

Since the freeboard for the levees located between the Union Pacific Railroad and the Main Street bridge along the Logan River and immediately upstream of the Union Pacific Railroad along Blacksmith Fork do not meet FEMA standards, it was necessary to evaluate the effect of the levees on water-surface elevations for two opposing conditions. First, it was assumed that the levee would hold during a major flood and water-surface elevations were computed accordingly. Second, it was assumed the levee would not hold and water-surface elevations were computed as if the levee did not exist. Both analyses were used in mapping the flood plain in these areas. For Blacksmith Fork, the two conditions produced nearly identical water surface elevations and a

separate water surface elevation profile was not deemed to be necessary; whereas, for the Logan River water-surface elevations computed for the first condition were significantly higher than those computed for the second condition and a separate water surface elevation profile for the without consideration of the levee scenario has been included.

The hydraulic analyses for this study were based on unobstructed flow with two exceptions. A culvert on Spring Creek at a field driveway located approximately 400 feet upstream from U.S. 89-91 was assumed to be 50 percent obstructed. This culvert was obstructed at the time of the field survey and is likely to be obstructed at the time of a major flood. The second exception to the assumption of unobstructed flow was at the Union Pacific Railroad bridge over the Logan River approximately 0.3 mile upstream from 600 West Street. This bridge was assumed to be 30 percent obstructed since it is prone to the collection of debris against its piers. The flood elevations shown on the profiles are thus considered valid only if the hydraulic structures, and other than those listed above, remain unobstructed, operate properly, and do not fail.

The results from the hydraulic analysis for the Dry Canyon Watershed Improvement Project which was prepared in December 2008 by Carollo Engineers were incorporated into the DFIRM (Reference 11). The analysis included a detailed hydraulic analysis for the Dry Canyon debris basin and storm sewer within the City of Logan. The hydraulic analysis was performed using XPSWMM Version 10.6.2 and shows that the storm sewer system contains the 1%-annual-chance event the entire length of the system from the Dry Canyon Debris Basin to the outfall at the Logan River.

Approximate Analyses

An approximate hydraulic analysis was performed on approximately 250 total stream miles by Michael Baker, Jr., Inc. in December 2009 (Reference 8). USACE's HEC-RAS version 3.1.3 computer program was used to perform the hydraulic analyses. The following is a summary of the streams that were restudied by approximate methods: Wide Hollow, portions of Little Bear River, Wide Hollow Tributary 2, Wide Hollow Tributary 3, a portion of Wide Hollow Tributary 1, a portion of Spring Creek, a portion of Blacksmith Fork, Millville Canyon, Left Hand Fork, Bear River, Bear River Tributary 1, Bear River Tributary 3, Bear River Tributary 4, Cub River, Cub River Tributary 1, Cub River Tributary 2, Worm Creek, Worm Creek Tributary 1, Myler Creek, Clay Slough, Clarkston Creek, City Creek, Bear River, Al Archibald Hollow and Al Archibald Hollow Tributary 1.

The previous effective floodplain information was used for the streams that were not restudied in the new analysis.

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD). With the completion of the North American Vertical Datum of 1988 (NAVD), many FIS reports and FIRMs are now prepared using NAVD as the referenced vertical datum.

The vertical datum offset values used for this countywide study are included in Table 4, "Vertical Datum Offset Table."

Table 4. Vertical Datum Offset Table

Flooding Source	Vertical Datum Offset (ft)
Blacksmith Fork	3.56
Logan River	3.54
Spring Creek	3.56

Flood elevations shown in this FIS report and on the FIRM are referenced to the NAVD. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the NGVD and NAVD, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with the FIS report and FIRM for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS report provides 1-percent-annual-chance floodplain data, which may include a combination of the following: 10-, 2-, 1-, and 0.2-percent-annual-chance flood elevations; delineations of the 1- and 0.2-percent-annual-chance floodplains; and a 1-percent-annual-chance floodway. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS report as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the community.

The 1-percent-annual-chance floodplain boundaries are shown on the FIRM. On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, AO, and VE), and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations, but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For each stream studied in detail, the 1-percent-annual-chance floodplain boundary has been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:12,000, with contour intervals of 2 feet (Reference 12).

For this study, the approximate flood boundaries were taken from the Flood Hazard Boundary Maps for the unincorporated areas of Cache County (Reference 13) or from the revised approximate analyses completed by Michael Baker, Jr., Inc. in December 2009 (Reference 8).

For the streams studied by approximate methods, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM.

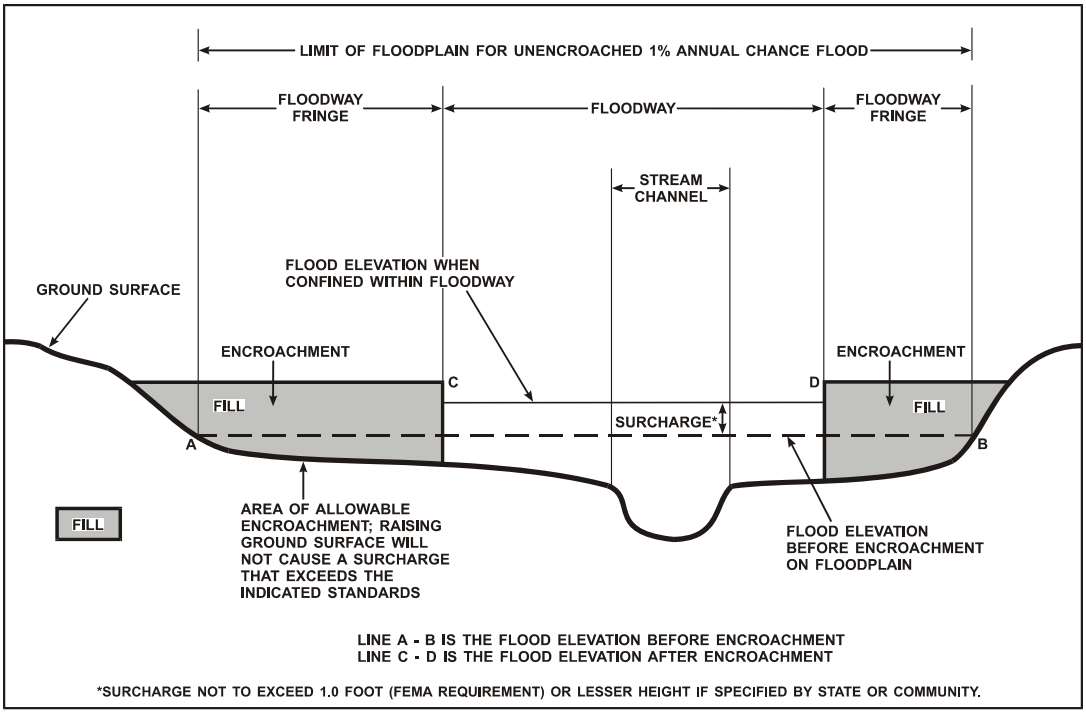
4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the base flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal-conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (see Table 5, Floodway Data). In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

The area between the floodway and 1-percent-annual-chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water surface elevation (WSEL) of the base flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.

Figure 1. Floodway Schematic



FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACKSMITH FORK								
A	765	56	261	7.7	4,471.2	4,471.2	4,471.5	0.3
B[2]	3,525	43	103	9.3	4,476.5	4,476.5	4,477.4	0.9
C[2]	3,640	59	188	5.1	4,479.7	4,479.7	4,480.3	0.6
D[2]	7,690	127	252	3.8	4,491.2	4,491.2	4,492.2	1.0
E[2]	8,890	94	149	6.4	4,497.9	4,497.9	4,498.4	0.5
F[2]	11,390	60	210	4.5	4,511.0	4,511.0	4,511.4	0.4
G[2]	11,474	809	415	4.8	4,512.2	4,512.2	4,513.2	1.0
H[2]	11,490	1,326	1,700	1.2	4,512.6	4,512.6	4,513.6	1.0
I[2]	11,590	1,388	2,916	0.7	4,512.8	4,512.8	4,513.6	0.8
J[2]	12,590	47	182	11.0	4,517.8	4,517.8	4,517.8	0.0
K[2]	12,635	32	158	12.7	4,519.0	4,519.0	4,519.0	0.0
L[2]	12,684	32	228	8.8	4,521.1	4,521.1	4,521.1	0.0
M[2]	12,744	375	1,946	1.0	4,522.7	4,522.7	4,522.7	0.0

[1] Stream Distance in Feet Above Mouth
[2] Cross Section is not Shown on FIRM. This data is for informational purposes only.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT (AND INCORPORATED AREAS)

FLOODWAY DATA

BLACKSMITH FORK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
LOGAN RIVER								
A[2]	28	61	439	5.2	4,431.0	4,431.0	4,432.0	1.0
B[2]	1,440	364	843	2.7	4,432.8	4,432.8	4,433.2	0.4
C[2]	3,040	68	372	6.2	4,435.3	4,435.3	4,435.6	0.3
D[2]	4,190	78	491	4.7	4,437.2	4,437.2	4,438.0	0.8
E[2]	6,490	110	488	4.7	4,441.4	4,441.4	4,441.7	0.3
F[2]	8,490	60	347	6.6	4,446.2	4,446.2	4,446.6	0.4
G[2]	12,440	145	629	3.7	4,454.5	4,454.5	4,455.5	1.0
H[2]	13,440	87	460	5.0	4,456.8	4,456.8	4,457.3	0.5
I[2]	15,240	95	440	5.2	4,460.9	4,460.9	4,461.1	0.2
J[2]	15,340	130	617	3.7	4,461.4	4,461.4	4,461.7	0.3
K[2]	15,390	130	623	3.7	4,461.4	4,461.4	4,461.7	0.3
L	15,510	102	600	3.8	4,461.6	4,461.6	4,461.8	0.2
M	17,890	55	307	7.5	4,465.4	4,465.4	4,466.2	0.8
N	18,070	99	452	5.1	4,467.4	4,467.4	4,467.5	0.1
O	19,620	115	471	5.1	4,471.6	4,471.6	4,472.6	1.0
P	19,740	200	1,414	1.7	4,475.0	4,475.0	4,475.8	0.8
Q	23,040	88	361	6.6	4,487.6	4,487.6	4,487.6	0.0
R	24,990	68	219	10.9	4,496.1	4,496.1	4,496.1	0.0
S	27,240	52	318	7.5	4,510.4	4,510.4	4,510.4	0.0
T	27,540	52	251	9.5	4,511.3	4,511.3	4,511.4	0.1
U	28,230	80	316	7.5	4,516.4	4,516.4	4,516.4	0.0
V	28,400	53	263	9.1	4,518.0	4,518.0	4,518.0	0.0
W	30,565	67	309	7.7	4,531.6	4,531.6	4,531.8	0.2
X	30,720	114	419	5.7	4,532.6	4,532.6	4,532.8	0.2
Y	31,570	71	290	8.2	4,536.9	4,536.9	4,536.9	0.0
Z	31,716	55	377	6.3	4,539.8	4,539.8	4,539.8	0.0

[1] Stream distance in feet above Sunday Creek

[2] Cross Section is not Shown on the FIRM. This data is for informational purposes only.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT (AND INCORPORATED AREAS)

FLOODWAY DATA

LOGAN RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
LOGAN RIVER (CONTINUED)								
AA	33,540	55	199	11.9	4,552.1	4,552.1	4,552.1	0.0
AB	33,720	55	285	8.4	4,557.0	4,557.0	4,557.0	0.0
AC	34,480	54	317	7.5	4,561.7	4,561.7	4,561.7	0.0
AD	34,640	88	256	9.3	4,562.8	4,562.8	4,562.8	0.0
AE	35,600	51	249	9.6	4,572.4	4,572.4	4,572.4	0.0
AF	35,763	80	337	7.1	4,576.5	4,576.5	4,576.5	0.0
AG	36,723	57	295	8.1	4,581.8	4,581.8	4,581.9	0.1
AH	36,773	66	516	4.6	4,590.4	4,590.4	4,591.4	1.0
AI	36,913	71	536	4.4	4,590.6	4,590.6	4,591.6	1.0
AJ	38,790	98	246	9.7	4,601.2	4,601.2	4,601.2	0.0
AK	40,300	67	307	7.8	4,619.1	4,619.1	4,619.1	0.0
AL	42,730	68	198	12.0	4,645.0	4,645.0	4,645.0	0.0
AM	42,900	75	517	4.6	4,649.3	4,649.3	4,649.3	0.0
LOGAN RIVER (WITHOUT CONSIDERATION OF LEVEE)								
Q	23,040	483	866	2.7	4,485.3	4,485.3	4,486.3	1.0

[1] Stream Distance in Feet Above Mendon Road

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT (AND INCORPORATED AREAS)

FLOODWAY DATA

LOGAN RIVER, LOGAN RIVER WITHOUT CONSIDERATION OF LEVEE

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
SPRING CREEK								
A	900	42	94	3.2	4,477.9	4,477.9	4,478.9	1.0
B	2,680	438	84	3.6	4,485.7	4,485.7	4,486.3	0.6
C	2,817	139	211	1.4	4,487.9	4,487.9	4,488.8	0.9
D[2]	3,035	118	338	0.9	4,491.4	4,491.4	4,491.4	0.0
E[2]	4,135	33	49	6.1	4,492.0	4,492.0	4,492.0	0.0
F[2]	4,365	31	103	2.9	4,498.2	4,498.2	4,498.2	0.0
G[2]	6,495	28	48	6.2	4,504.8	4,504.8	4,504.8	0.0
H[2]	6,855	159	306	1.0	4,508.0	4,508.0	4,508.0	0.0
I[2]	7,355	18	41	7.4	4,510.2	4,510.2	4,510.2	0.0
J[2]	9,655	62	101	3.0	4,528.2	4,528.2	4,528.3	0.1
K[2]	9,955	94	669	0.4	4,537.9	4,537.9	4,537.9	0.0

[1] Stream Distance in Feet Above Mouth

[2] Cross Section is not on the FIRM. This data is for informational purposes only.

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT (AND INCORPORATED AREAS)

FLOODWAY DATA

SPRING CREEK - LOGAN AND PROVIDENCE

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base (1-percent-annual-chance) flood elevations (BFEs) or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by detailed methods. Whole foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to areas of 1-percent-annual-chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to areas of 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile (sq. mi.), and areas protected from the base flood by levees. No BFEs or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole foot BFEs or average depths. Insurance agents use zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent-annual-chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The countywide FIRM presents flooding information for the entire geographic area of Cache County. Previously, FIRMs were prepared for each incorporated community and the unincorporated areas of the County identified as flood-prone. This countywide FIRM also includes flood-hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community are presented in Table 6 “Community Map History.”

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISION DATE(S)	FLOOD INSURANCE RATE MAP EFFECTIVE DATE	FLOOD INSURANCE RATE MAP REVISION DATE(S)
Amalga, Town of	September 5, 1975	N/A	July 22, 1980	N/A
Cache County (Unincorporated Areas)	September 29, 1981	N/A	February 1, 1987	N/A
Clarkston, Town of	September 5, 1975	N/A	August 19, 1980	N/A
Cornish, Town of	May 24, 2011	N/A	May 24, 2011	N/A
Hyde Park, Town of	August 2, 1974	N/A	July 29, 1980	N/A
Hyrum, City of	May 24, 1974	N/A	April 8, 1980	N/A
Lewiston, City of	August 16, 1974	N/A	July 29, 1980	N/A
Logan, City of	January 16, 1974	N/A	September 28, 1984	N/A
Mendon, City of	July 18, 1975	N/A	July 22, 1980	N/A
Millville, Town of	October 22, 1976	N/A	May 24, 2011	N/A
Newton, Town of	July 11, 1975	N/A	July 22, 1980	N/A
Nibley, Town of	July 18, 1975	N/A	August 5, 1986	N/A
North Logan, City of	June 28, 1974	N/A	March 18, 1986	N/A
Paradise, Town of	November 5, 1976	N/A	May 24, 2011	N/A
Providence, City of	May 24, 2011	N/A	May 24, 2011	N/A
Richmond, City of	April 2, 1976	N/A	August 12, 1980	N/A
River Heights, City of	May 24, 2011	N/A	May 24, 2011	N/A
Smithfield, City of	June 28, 1974	N/A	March 18, 1986	N/A
Trenton, Town of	May 24, 2011	N/A	May 24, 2011	N/A
Wellsville, City of	June 21, 1974	N/A	July 29, 1980	N/A

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

No previous Flood Insurance Studies have been conducted for the City of Logan. However, a Flood Hazard Boundary Map (Reference 13) was prepared by the Federal Insurance Administration and published in 1977. This map is superseded by the present study. The COE completed a Flood Plain Information report for the Logan River in 1973 (Reference 14) and a Flood Plain Information report for Blacksmith Fork and Spring Creek in 1976 (Reference 15). These investigations included mapping of the flood plains along the various streams for the intermediate regional and standard project floods. (l)

Significant differences were found between the water-surface elevations and flood plain boundaries computed by the COE for the intermediate regional flood and those computed in this Flood Insurance Study for the 100-year flood on the Logan River, Blacksmith Fork, and Spring Creek. Water-surface elevations computed in this study were generally lower than those computed by the COE.

The differences may be attributed mainly to the different hydrologic and hydraulic methodologies used. The peak flood discharges used in hydraulic computations for this study differed significantly from that of the COE for the Logan River below its confluence with Blacksmith Fork, for Blacksmith Fork, and Spring Creek. A report was prepared (Reference 16) outlining the rationale and computations employed to obtain the peak discharges used in this study and was submitted to the COE for review and comments. The COE indicated that the flood discharge estimates used in this study are reasonable since they were based upon more recent information than was available at the time of their studies.

More improved mapping was available for this Flood Insurance Study than was available to the COE at the time of their study. Aerial photographic maps at a scale of 1:1,200 with a contour interval of 2 feet were used for the Logan River above 1000 West Street, Blacksmith Fork below 1700 South Street, and Spring Creek below State Road 165, whereas, the COE was obliged to use USGS Quadrangle Maps at a scale of 1:24,000 with a contour interval of 10 feet.

(l)The COE defines the intermediate regional and standard project floods as follows:

Intermediate Regional Flood. A flood having an average frequency of occurrence in the order of once in 100 years although the flood may occur in any year. It is based on statistical analyses of stream flow records

available for the watershed and analyses of rainfall and runoff characteristics in the general region of the watershed.

Standard Project Flood. The flood that may be expected from the most severe combination of meteorological and hydrological conditions that are considered reasonably characteristic of the geographical area in which the drainage basin is located, excluding extremely rare combinations. Peak discharges for these floods are generally approximately 40 to 60 percent of the Probable Maximum Floods for the same basins. As used by the COE. Standard Project Floods are intended as practicable expressions of the degree of protection that should be sought in the design of flood control works, the failure of which might be disastrous.

One specific point where the 100-year flood profile of this study differs significantly from that of the COE study is at the Union Pacific Railroad bridge over the Logan River just above the confluence of Blacksmith Fork. The difference is due to the assumption of 30 percent blockage by debris in computations made for this study, whereas the COE assumed no debris blockage. This resulted in a higher water-surface elevation upstream of bridge.

There are no other studies past or present which will significantly affect the results of this study. Flood discharges, elevations, and boundaries as computed in the Flood Insurance Study were adopted for use since it was determined that they best represent current hydrologic and hydraulic procedures and existing physical and topographic conditions.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting Federal Insurance and Mitigation Division, FEMA Region VIII, Denver Federal Center, Building 710, Box 25267, Denver, Colorado 80225-0267.

9.0 BIBLIOGRAPHY AND REFERENCES

1. U.S. Department of Commerce, Bureau of the Census, 2000 Census of Population, Utah.

2. U.S. Department of the Interior, Geological Survey, Cloudburst Floods and Mud Rock Flows Between Providence and Millville Canyons, Office Memorandum, Salt Lake City, Utah, 1959.

3. U.S. Water Resources Council, “Guidelines for Determining Flood Flow Frequency", Bulletin 17A, 1977.

4. U.S. Department of the Interior, Geological Survey, Open-File Report, Floods of Utah, Magnitude and Frequency Characteristics through 1969, E. Butler and R.W. Cruff, 1971.

5. U.S. Department of the Interior, Geological Survey, Water-Supply Paper 1684, Magnitude and Frequency of Floods in the United States, Part 10, The Great Basin, E. Butler, J.K. Reid, and V.K. Berwick, 1966.

6. U.S. Department of Transportation, Federal Highway Administration, Runoff Estimates for Small Rural Watersheds and Development of a Sound Design Method, Volumes I and II, Prepared by Utah Water Research Laboratory, Utah State University, 1977.

7. Anderson Consulting Engineers, Inc., Dry Canyon Hydrologic Modeling, Sediment Yield and Sediment Transport Analyses, Logan, Utah, Prepared for Carollo Engineers, P.C., October 2006.

8. Michael Baker, Jr., Inc. Cache County, UT, Technical Support Data Notebook, Detailed Hydrologic Analysis – Logan and Little Bear Rivers, Zone A Analyses – Countywide, Cache County, UT, December 2009.

9. U.S. Geologic Survey, The National Flood-Frequency Program – Methods for Estimating Flood Magnitude and Frequency in Rural Areas in Utah, September 2009.

10. U.S. Department of the Army, Corps of Engineers, Hydro logic Engineering Center, Computer Program 723-X6-L202A HEC-2 Water Surface Profiles, Davis, California, November 1976 with updates.

11. Carollo Engineers, P.C., Dry Canyon Watershed Improvement Project, December 2008.

12. City of Logan, Utah, Aerial Topographic Maps, Scale: 1:1,200, contour interval: 2 feet.

13. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Logan, Utah, 1977 revised.

14. U.S. Department of the Army, Corps of Engineers, Sacramento District, Logan River, Logan, Utah, Floodplain Information Report, 1973.

15. U.S. Department of the Army, Corps of Engineers, Blacksmith Fork and Spring Creek, Millville, Utah, Flood P1ain Information Report; 1976.

16. Rollins, Brown and Gunnell, Inc. Hydrology Report of Flood Insurance Studies for Logan, Utah and Adjacent Areas, 1981.

Dawdy, David R., Flood Frequency Estimates on A1luvial Fans, Journal of the Hydraulics Division, ASCE., November, 1979, HY11, pp. 1407-1413.

Magura, Lawrence M. and Darrel E. Wood, Flood Hazard Identification and Flood P1ain Management on Alluvial Fans, Water Resources Bulletin, American Water Resources Association, February 1980, pp. 56-62.

McCuen, Richard H., Map Skew, Journal of the Water Resources Planning and Management Division, ASCE, 1979, WR2, pp. 269-277.

Powell, Roy F. and L. Douglas James, Approximate Method for Quick Flood P1ain Mapping;, Journal of the Water Resources Planning and Management Division ASCE, WRI, March 1980, pp. 103-122.

U.S. Department of Agriculture, Agricultural Research Service, Flood Flow Frequency for Ungaged Watersheds; A Literature Evaluation, Richard H. McCuen, 1977.

U.S. Department of Agriculture, Soil Conservation Service, Forest Service, and Economic Research Service, Bear River Basin Cooperative Study, Idaho, Utah, Wyoming, Floods Working Paper, 1977.

U.S. Department of Agriculture, Soil Conservation Service, National Engineering Handbook, Section 4, Hydrology, 1972.

U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of Cache Valley Area, Utah, Parts of Cache and Box Elder Counties, 1974.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Precipitation-Frequency Atlas of the Western United States, Volume VI-Utah, 1973.

U.S. Department of the Interior, Bureau of Reclamation, Flood Frequency Study for Blacksmith Fork Diversion Damsite-Bear River Project, Utah-Idaho, 1967.

U.S. Department of the Interior, Bureau of Reclamation, Flood Frequency Study for Logan River Diversion Dam - Bear River Project, Utah Idaho, 1966.

U.S. Department of the Interior, Geological Survey, Utah Division of Water Resources Cooperative Investigations, Report No. 11, Developing a State Water Plan, Cloudburst Floods in Utah 1939-1969, Elmer Butler, 1972.

U.S. Department of the Interior, Geological Survey, Water Resources Data for Utah, 1961-1978.

U.S. Department of the Interior, Geological Survey, Water Resources, Estimating Stream flow Characteristics for Streams in Utah Using Selected Channel - Geometry Parameters, Fred K. Fields, 1975.

U.S. Department of the Interior, Geological Survey, Water-Supply Paper 994, Cloudburst Floods in Utah, 1850-1938, 1946.

Utah State University, Department of Soils and Biometeorology, Estimated Return Periods for Short-Duration Precipitation in Utah, E. Arlo Richardson, 1971.

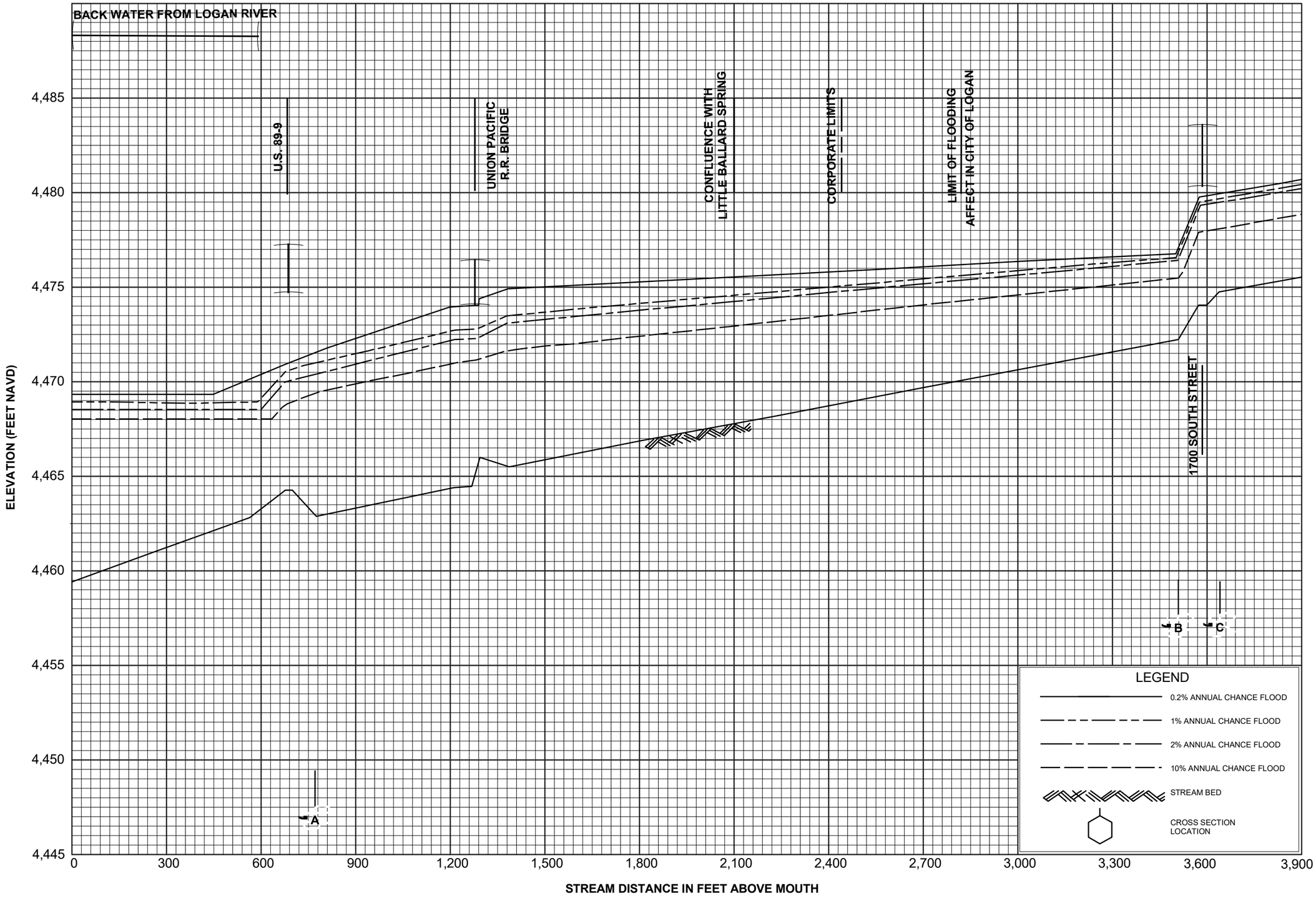
U.S. Water Resources Council, Pacific Southwest Interagency Committee, Great Basin Region Comprehensive Frame Work Study, Appendix IX, Flood Control, 1971.

Utah Water Research Laboratory, Flood Damage Mitigation in Utah, Terrence L. Glover, Daniel H. Hoggan, L. Douglas James, Dean T. Larsen, 1980.

Utah Water Research Laboratory, Hydrologic Atlas of Utah, R.W. Jeppson, et.al., 1968.

Utah Water Research Laboratory, Hydrologic Inventory of the Bear River Study Unit, Frank W. Haws and Trevor C. Hughes, Logan, Utah, 1973.

Whitaker, G.L., Summary of Maximum Discharges in Utah Streams, State of Utah Technical Publication No. 21, 1969.



FLOOD PROFILES

BLACKSMITH FORK

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

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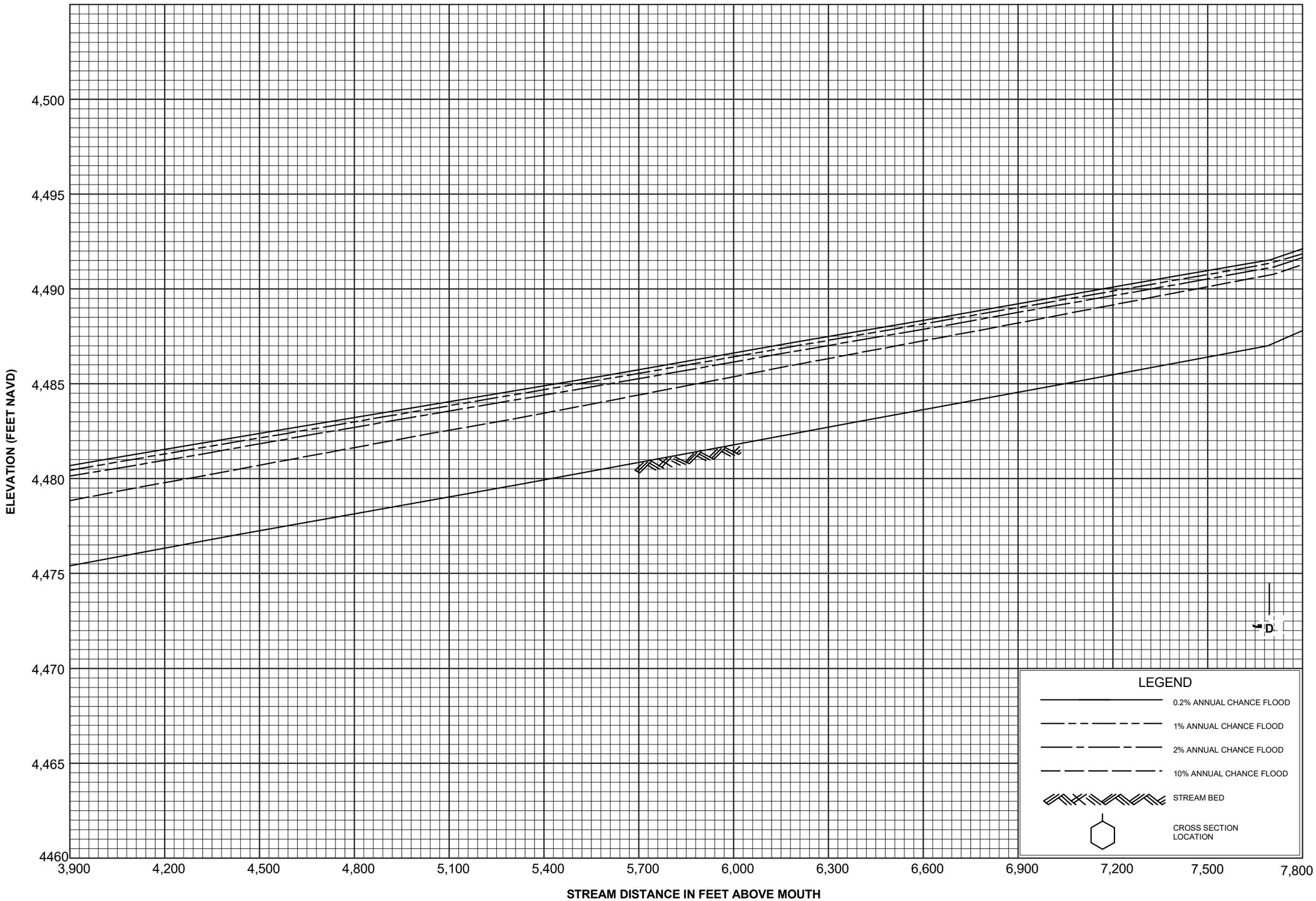

FLOOD PROFILES

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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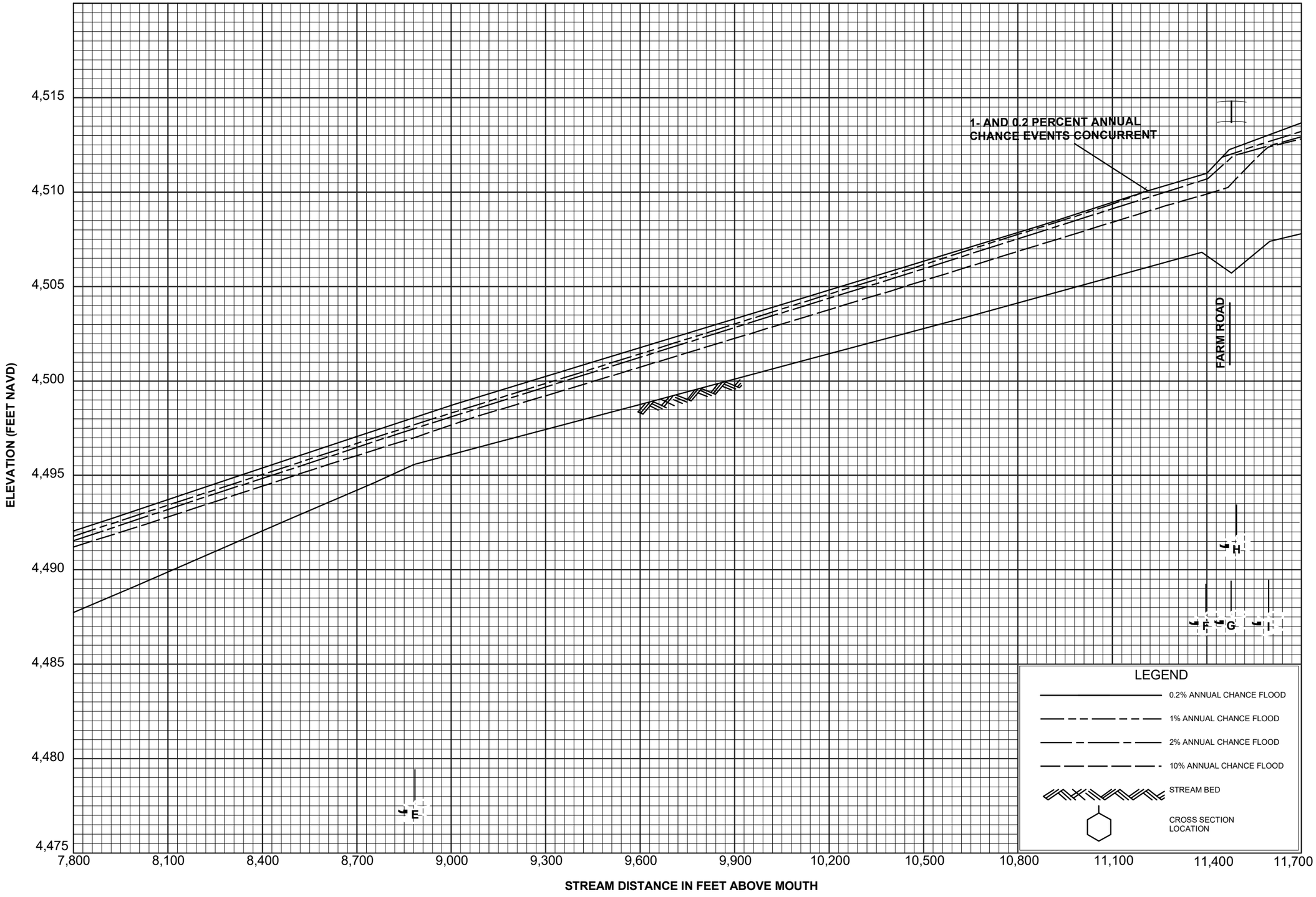

FLOOD PROFILES

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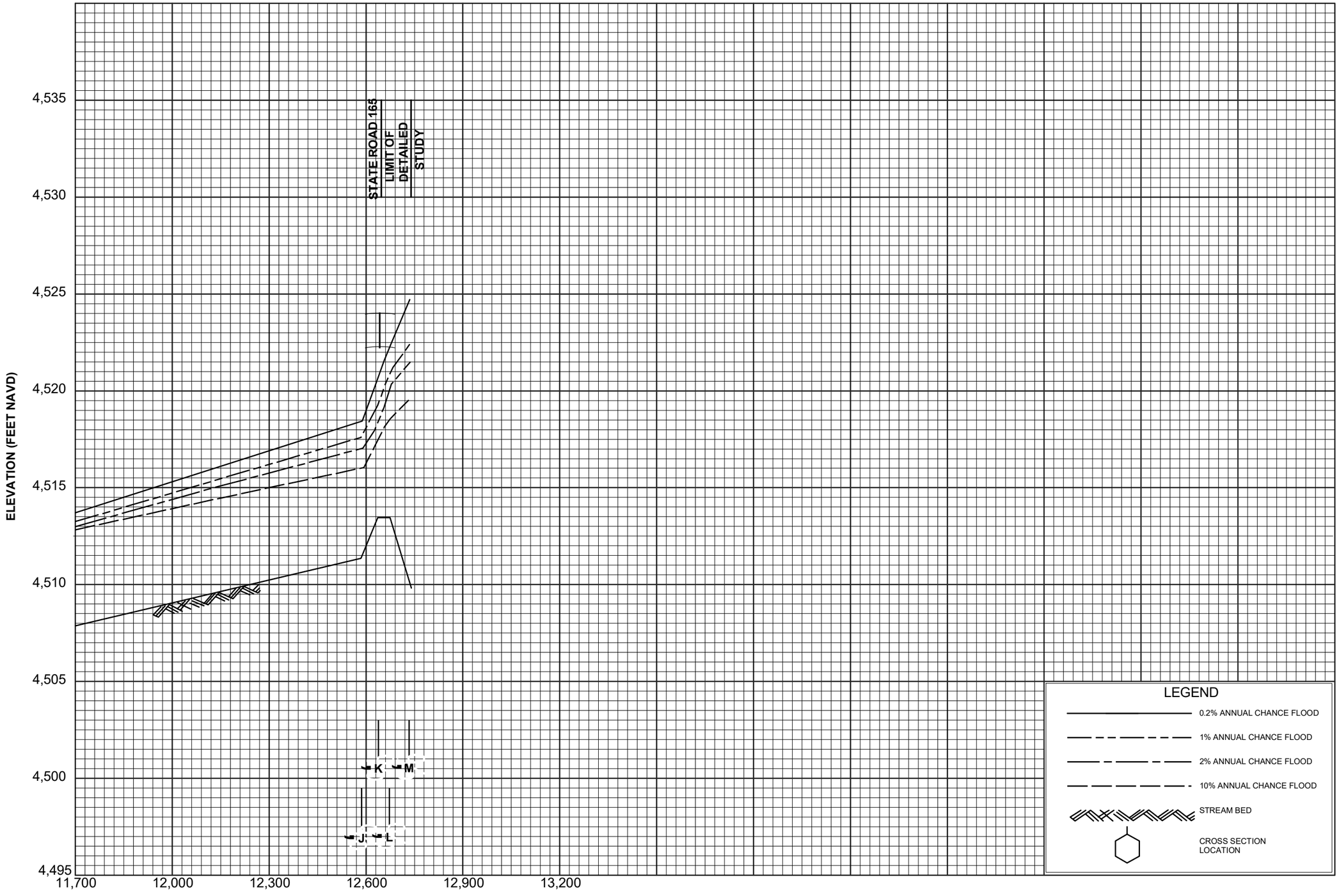

FLOOD PROFILES

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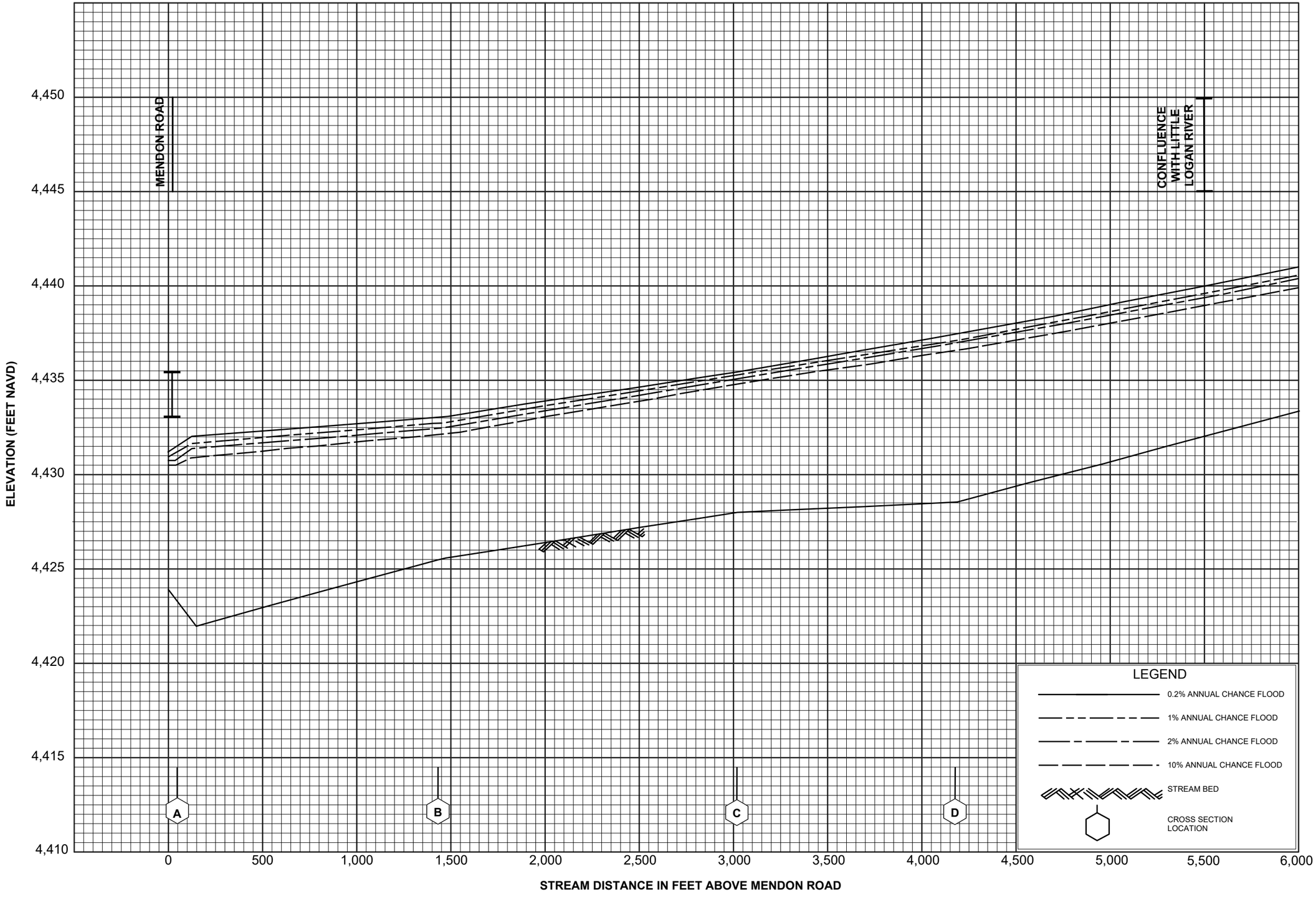

FLOOD PROFILES

LOGAN RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

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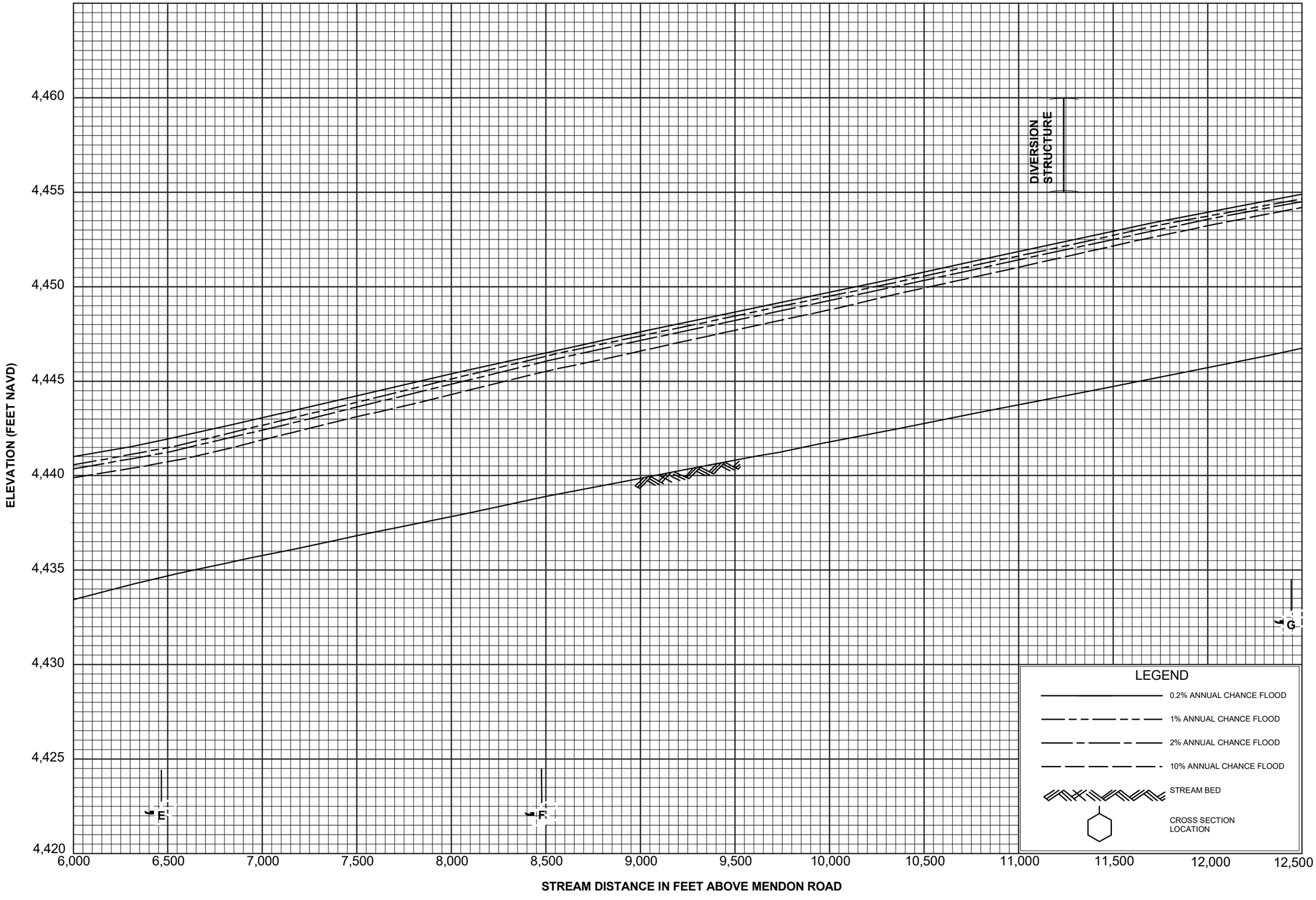

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CACHE COUNTY, UT
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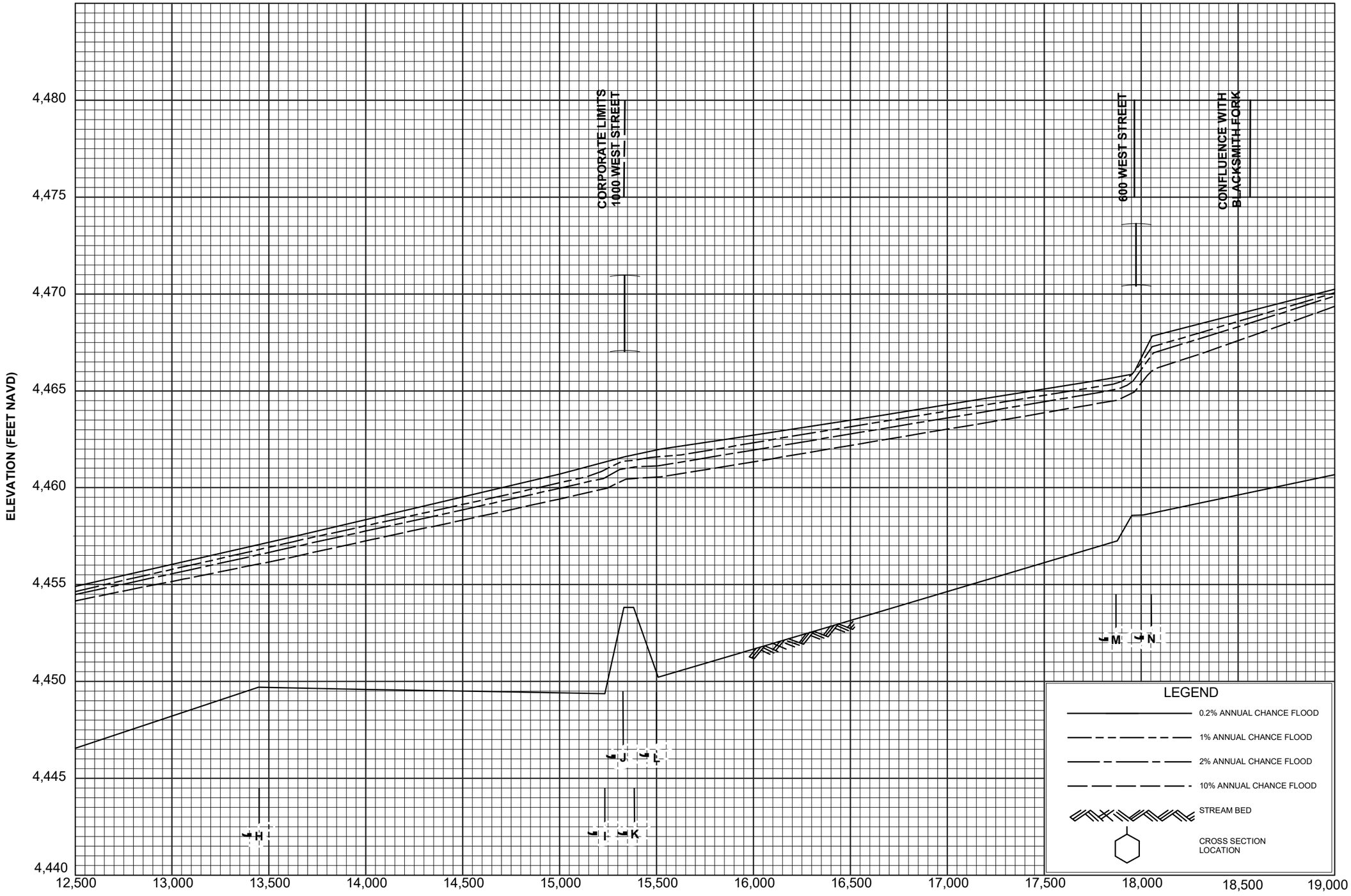

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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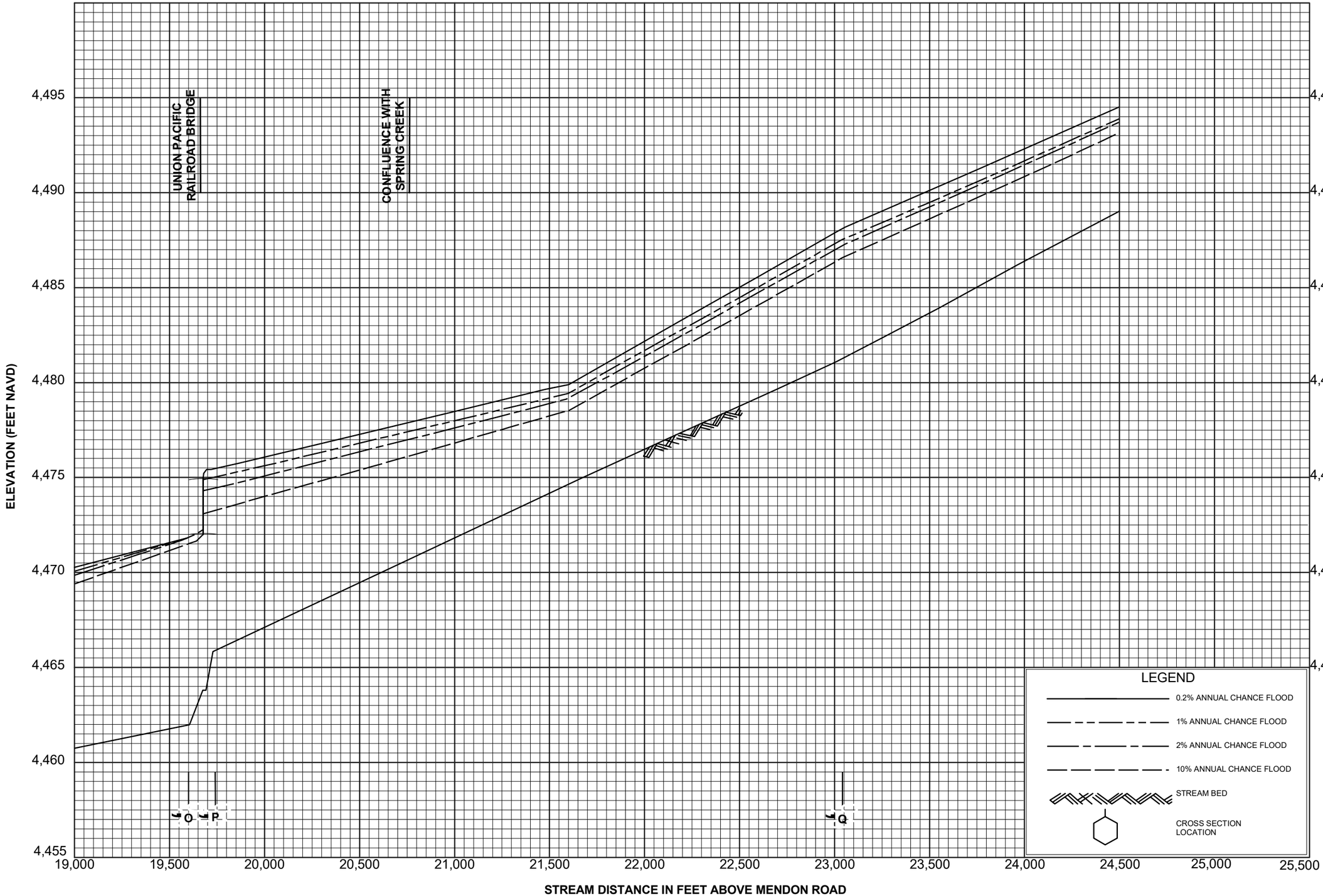

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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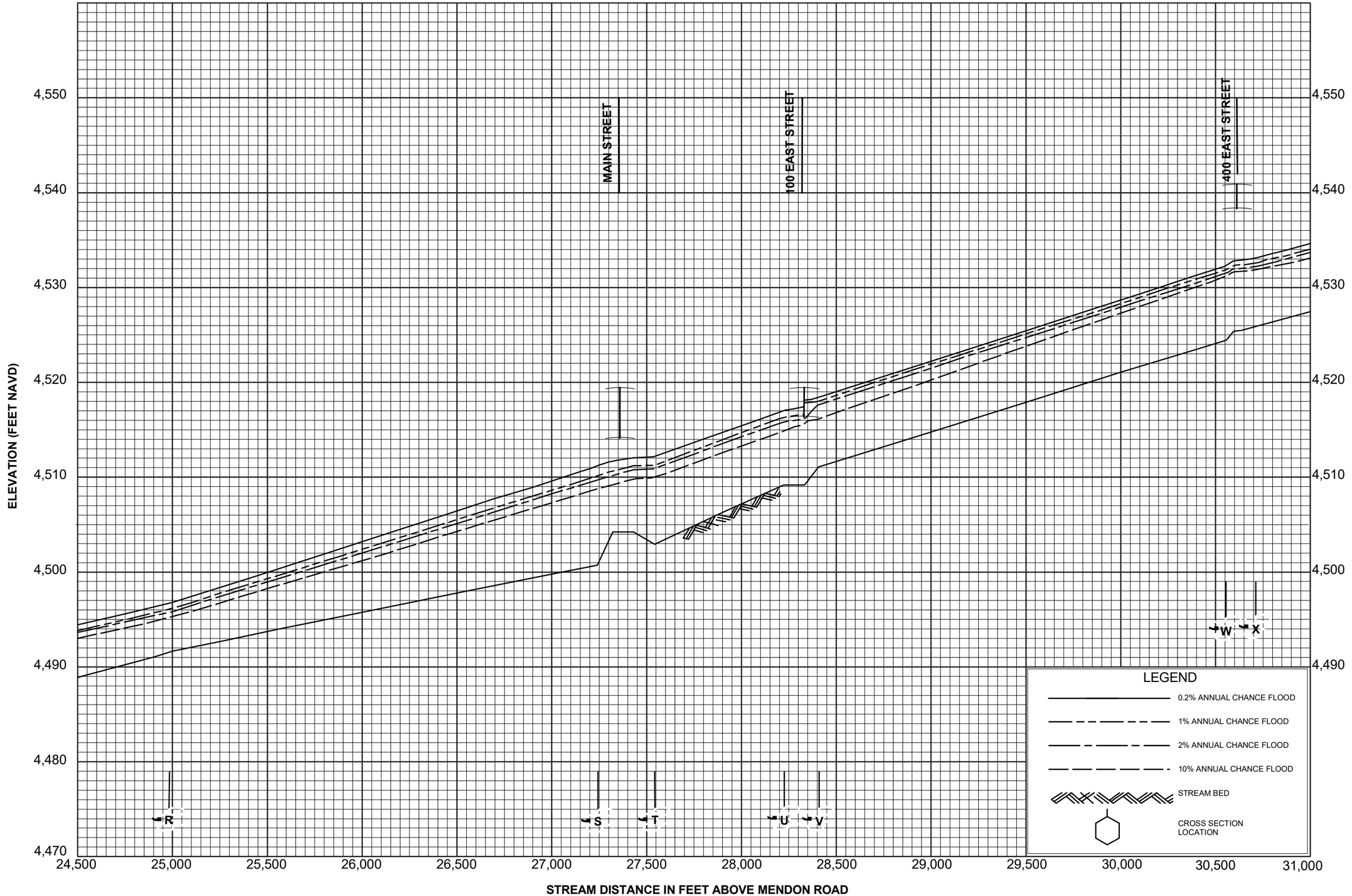

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LOGAN RIVER

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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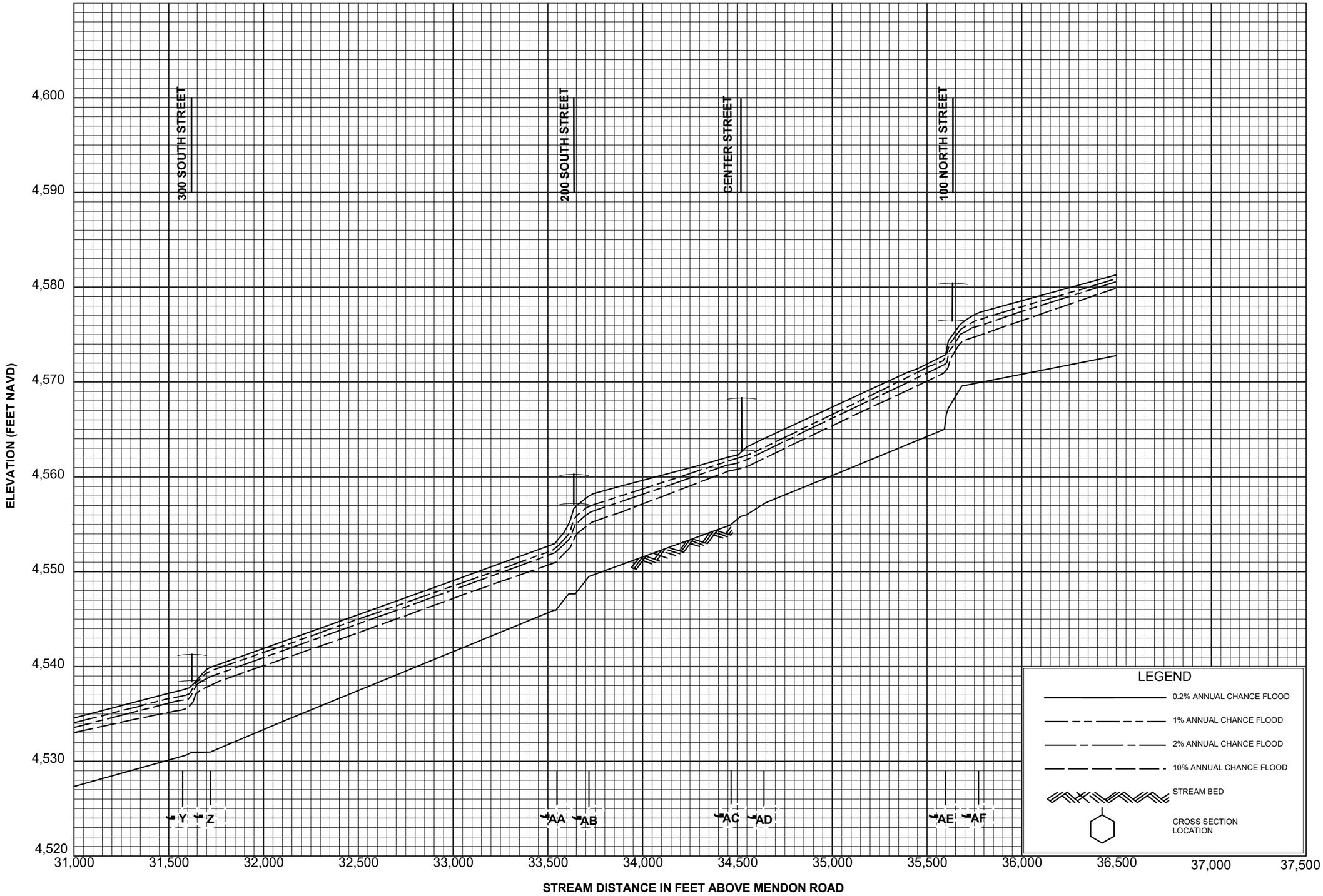

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LOGAN RIVER

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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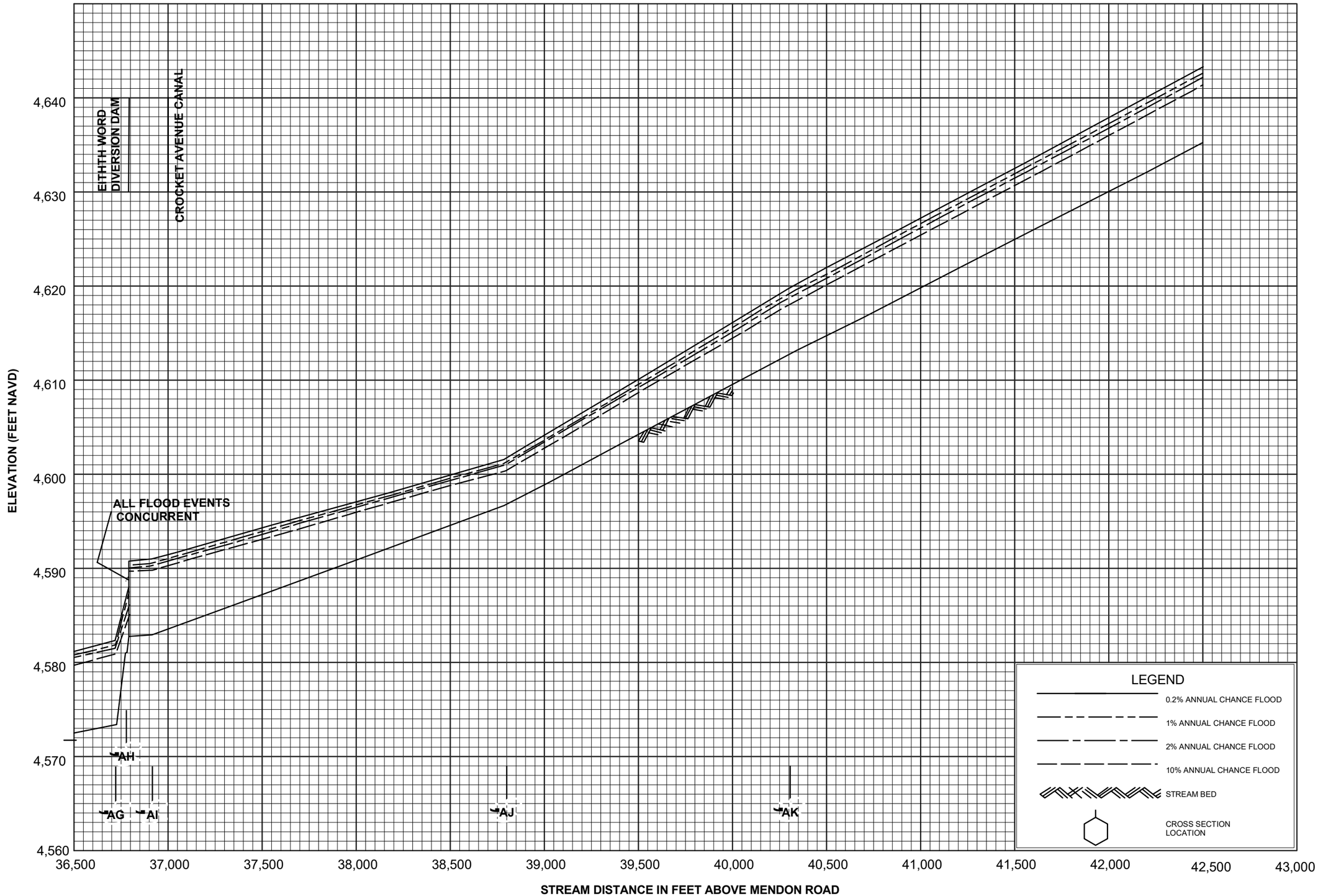

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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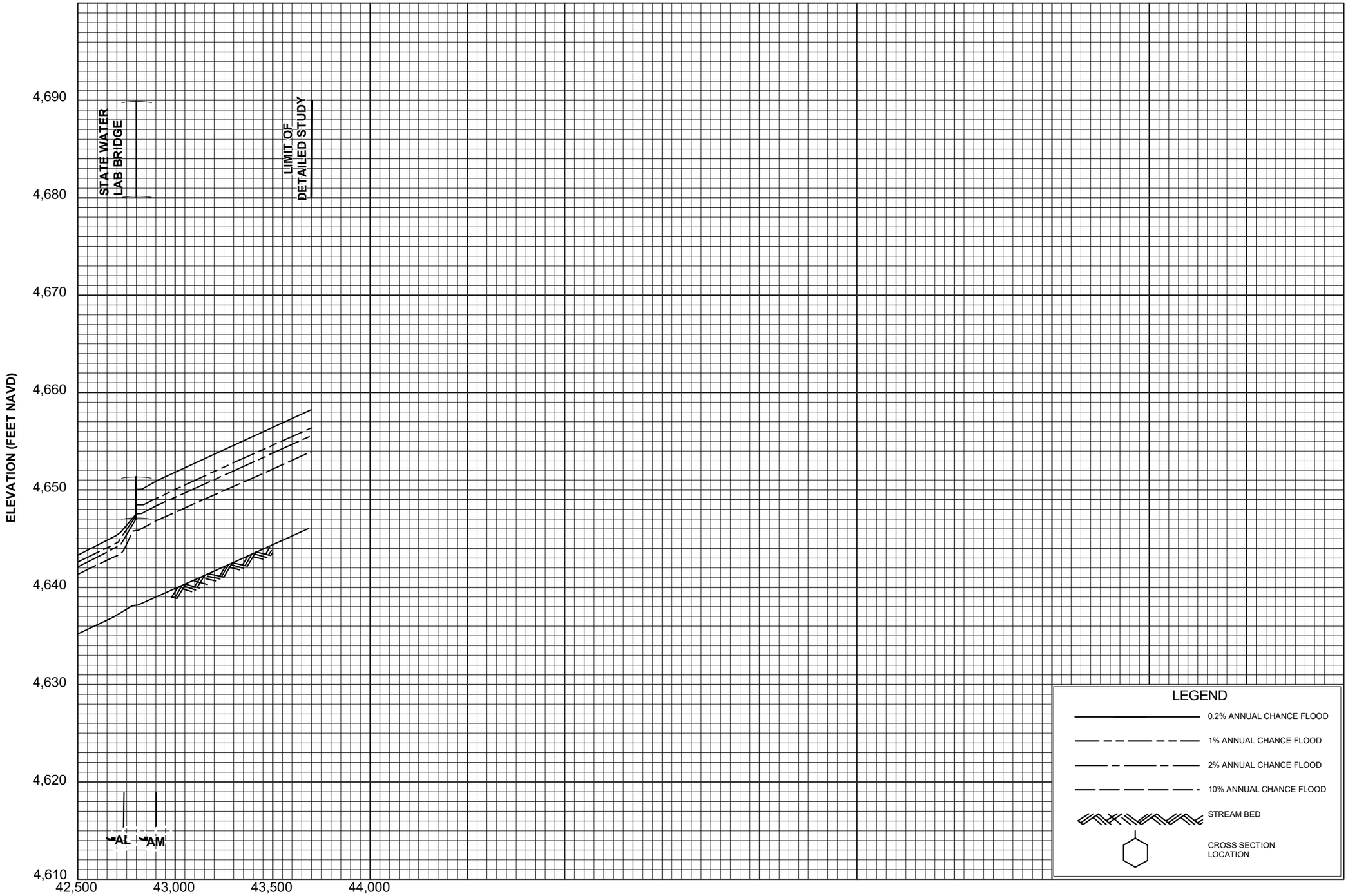

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LOGAN RIVER

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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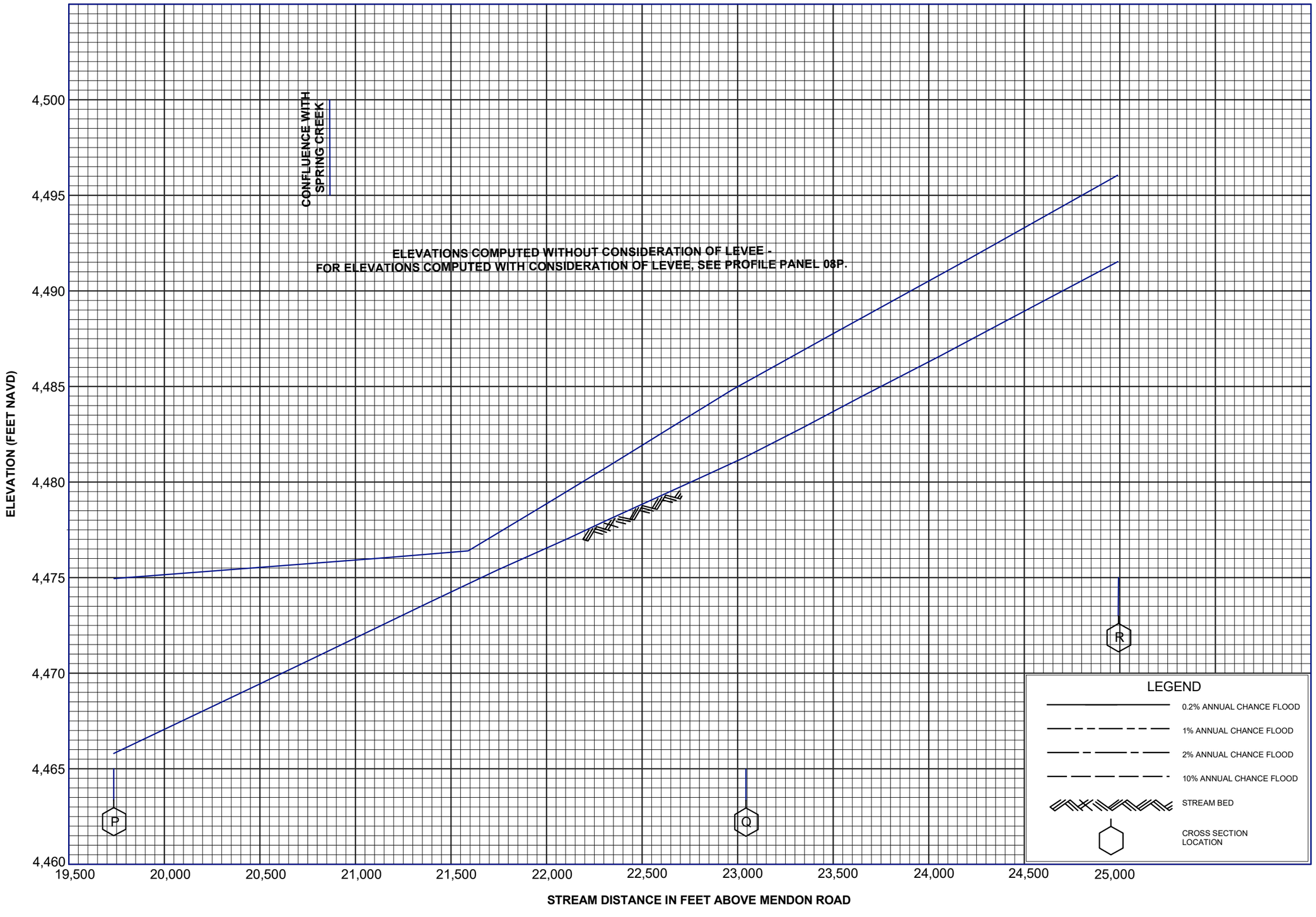

FLOOD PROFILES

LOGAN RIVER - WITHOUT CONSIDERATION OF LEVEE

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

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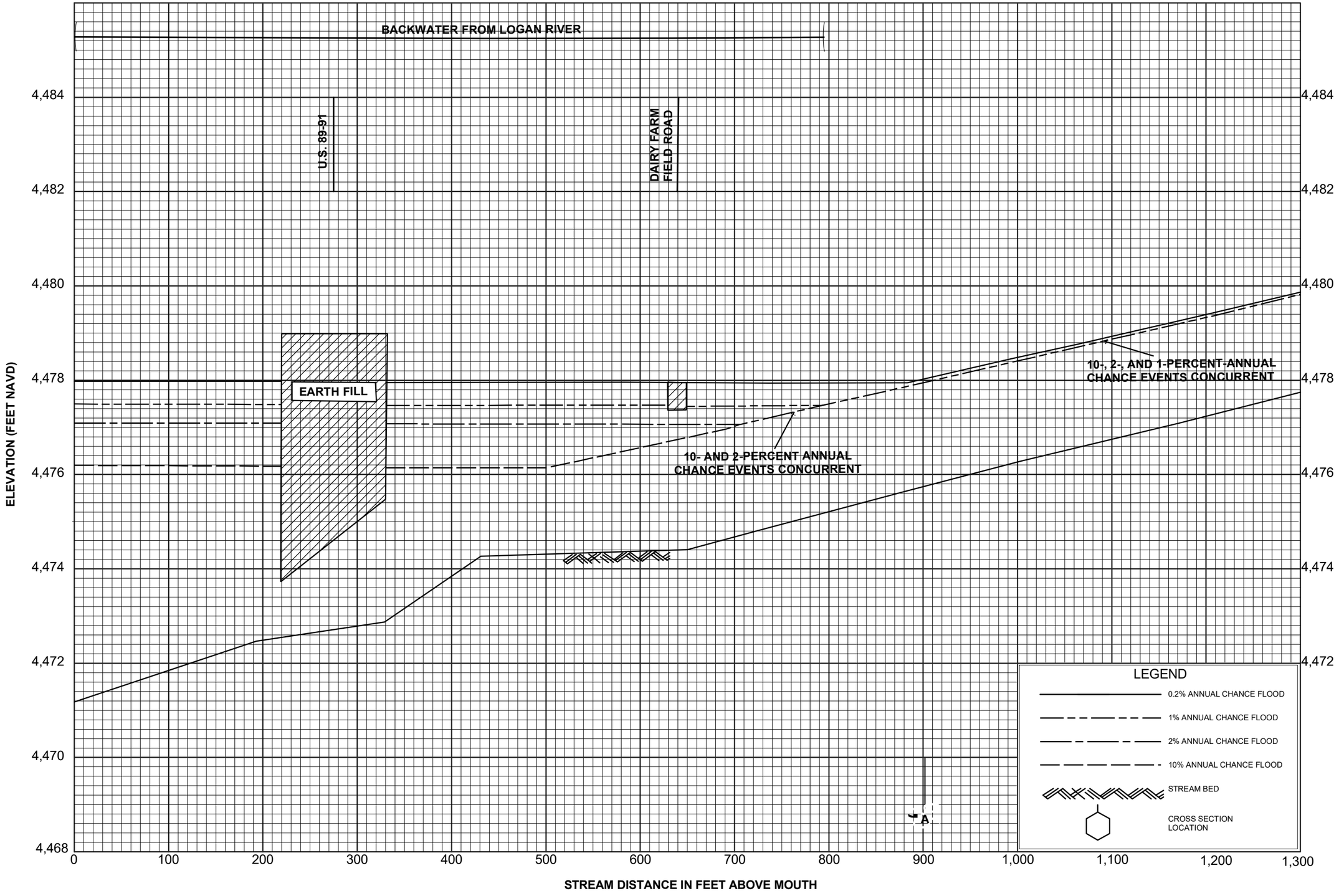

FLOOD PROFILES

SPRING CREEK - LOGAN AND PROVIDENCE

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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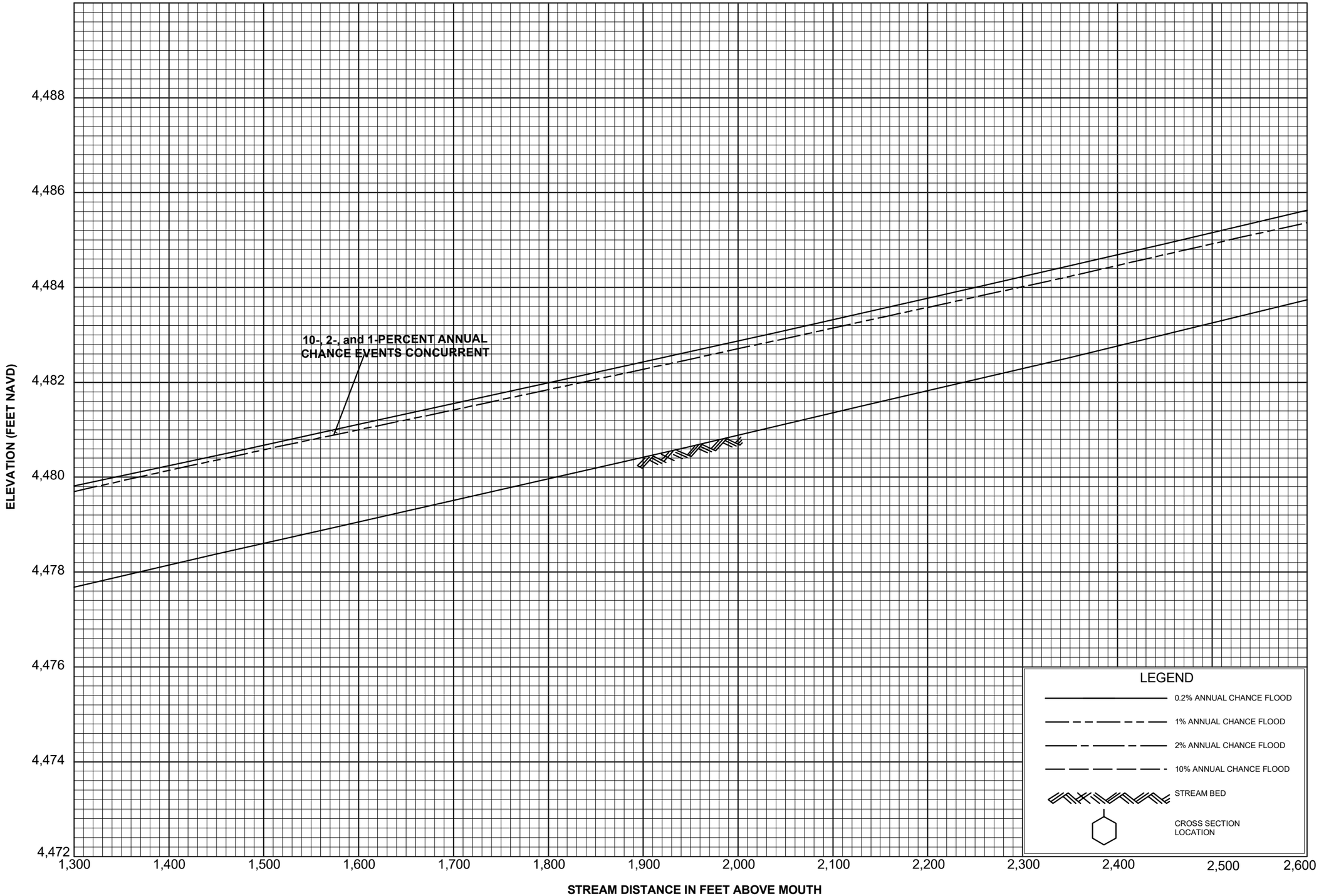

FLOOD PROFILES

SPRING CREEK - LOGAN AND PROVIDENCE

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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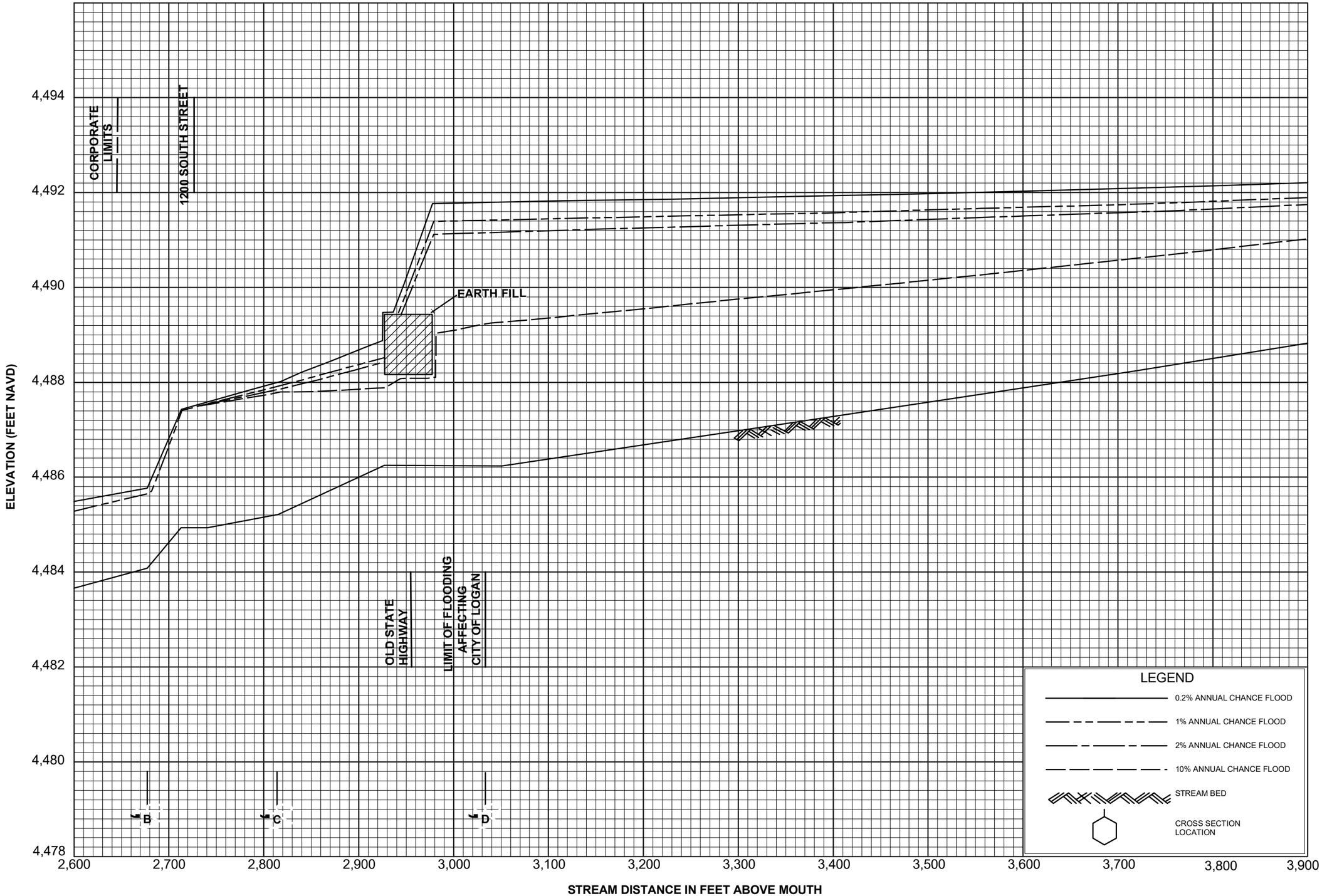

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SPRING CREEK - LOGAN AND PROVIDENCE

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CACHE COUNTY, UT
AND INCORPORATED AREAS

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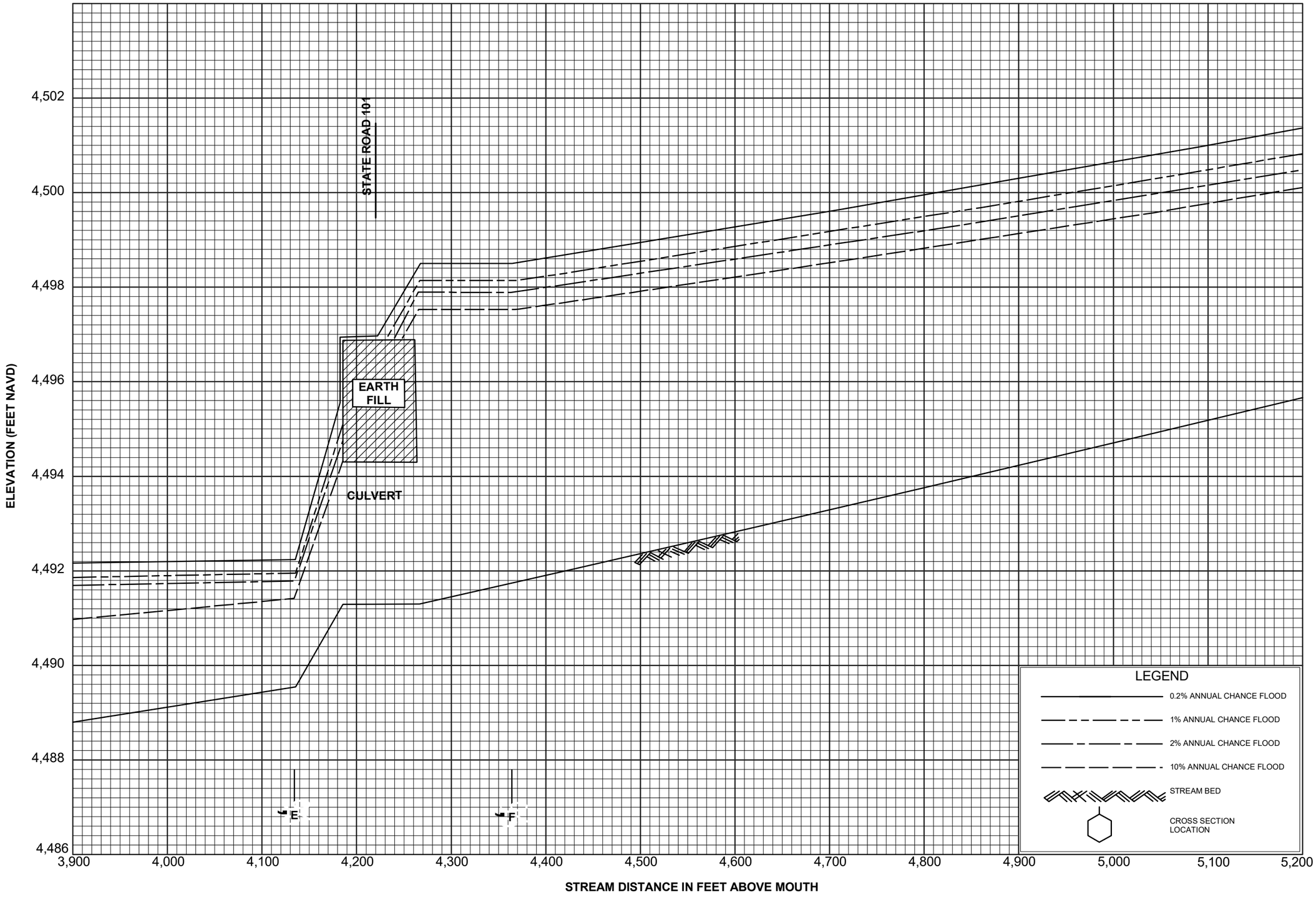

FLOOD PROFILES

SPRING CREEK - LOGAN AND PROVIDENCE

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

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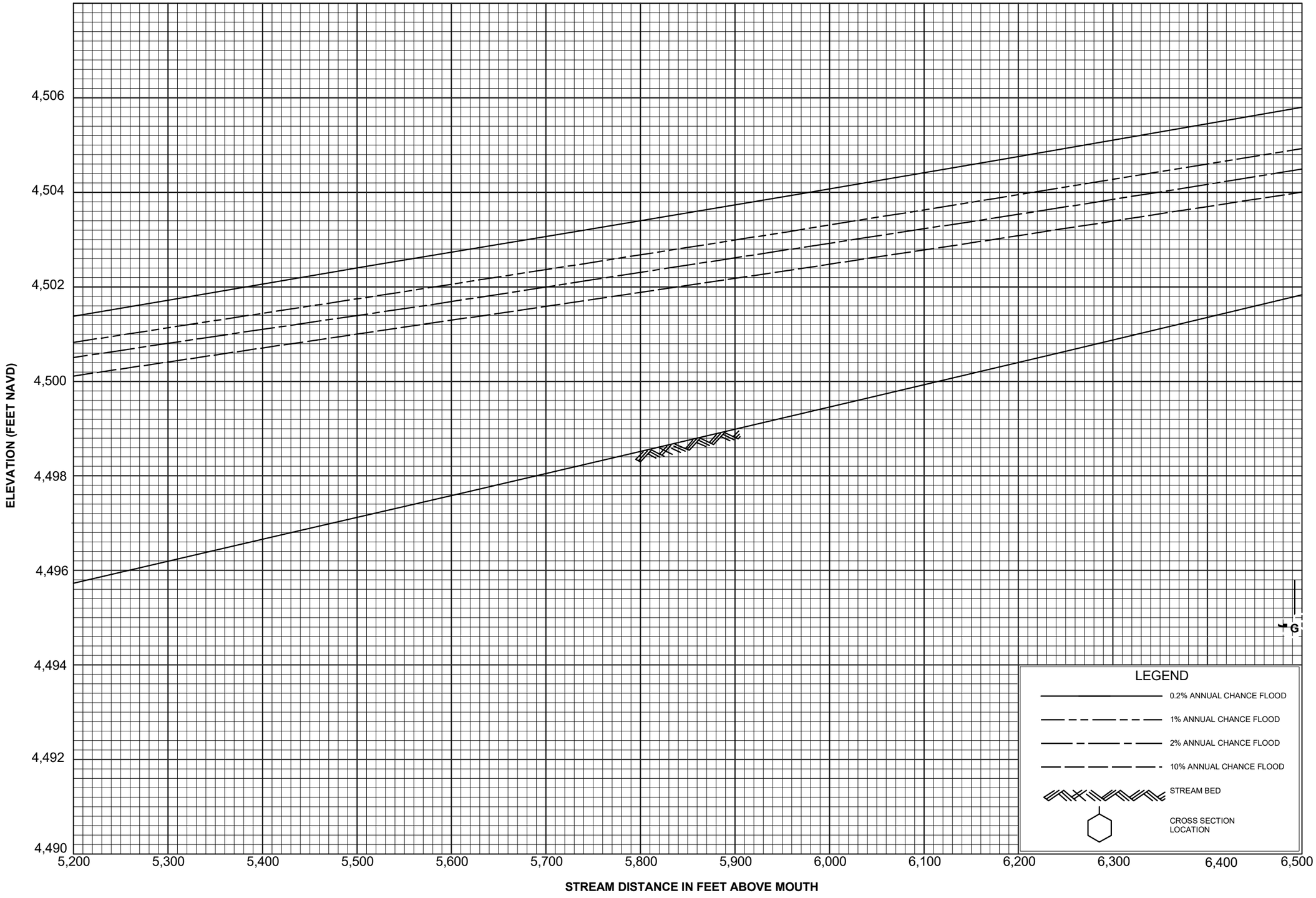

FLOOD PROFILES

SPRING CREEK - LOGAN AND PROVIDENCE

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

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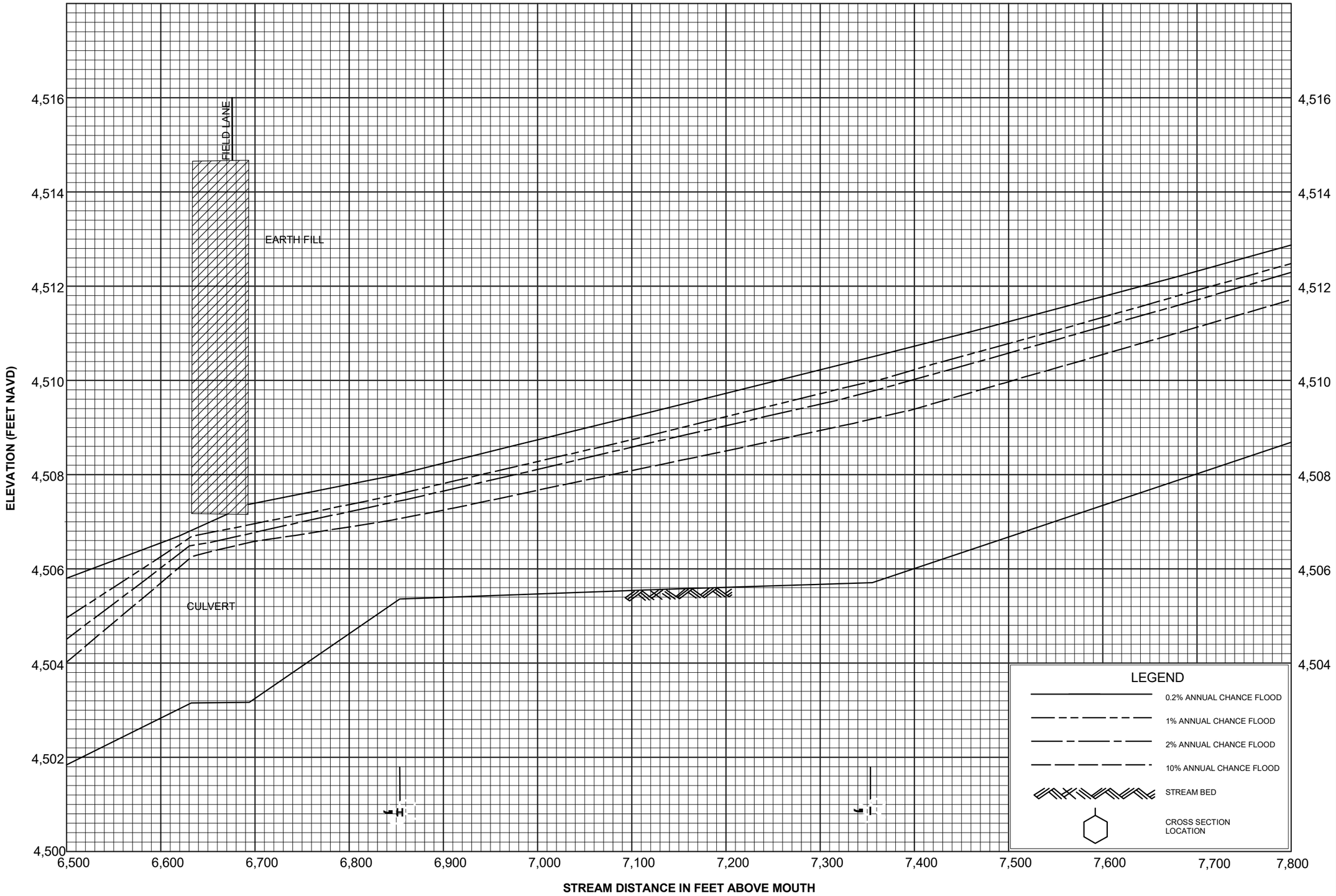

FLOOD PROFILES

SPRING CREEK - LOGAN AND PROVIDENCE

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

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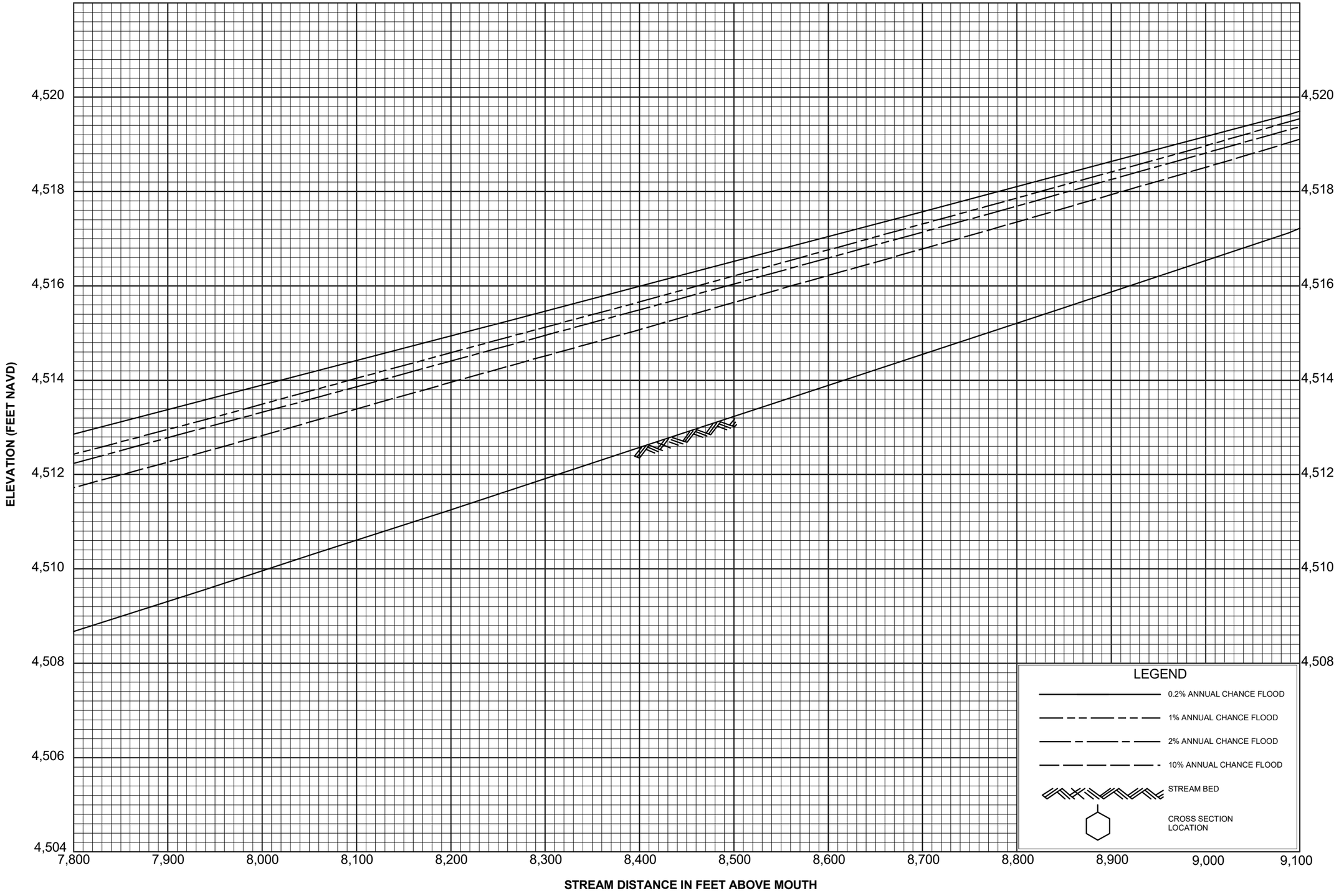

FLOOD PROFILES

SPRING CREEK - LOGAN AND PROVIDENCE

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

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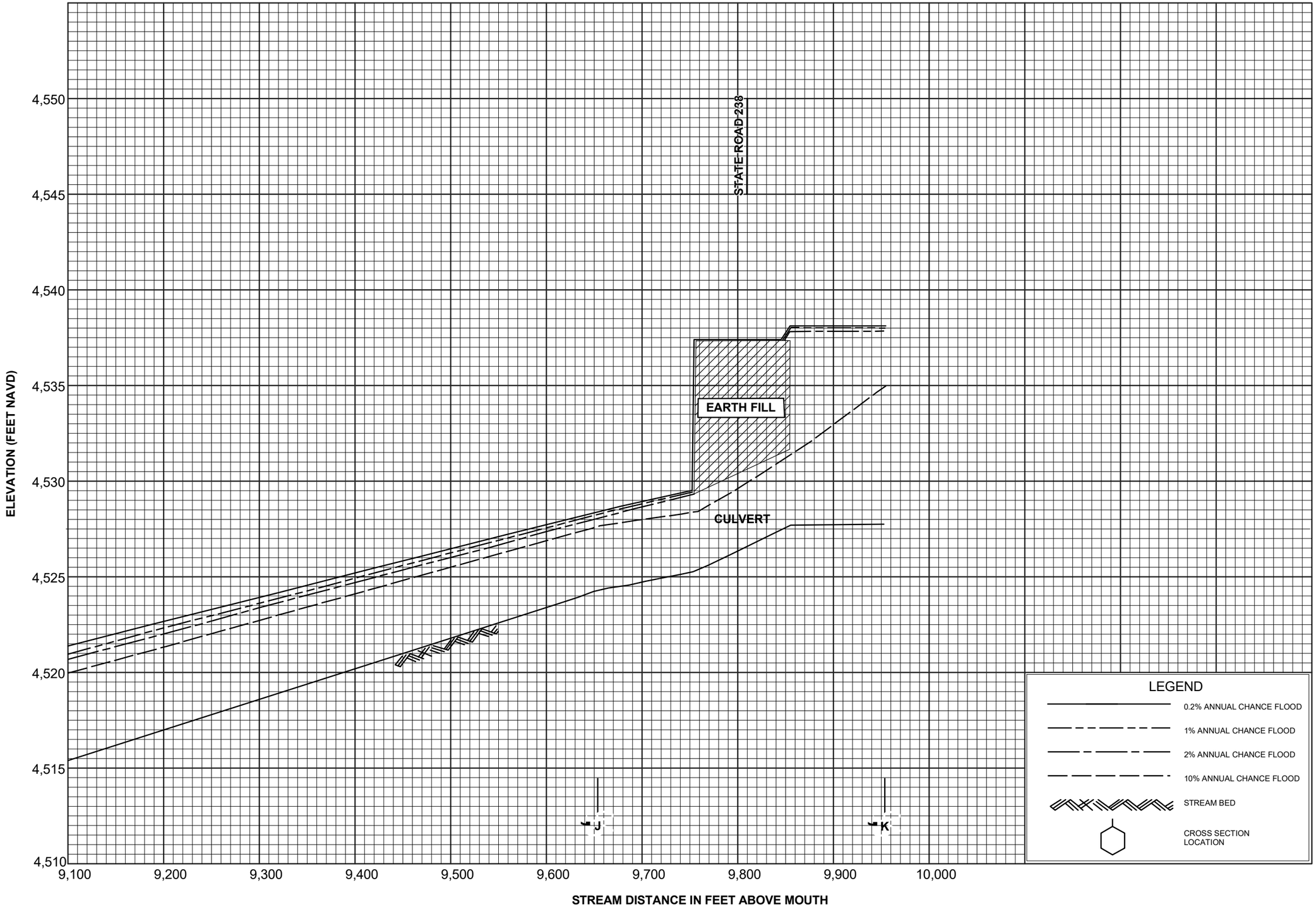


FLOOD PROFILES

SPRING CREEK - LOGAN AND PROVIDENCE

FEDERAL EMERGENCY MANAGEMENT AGENCY

CACHE COUNTY, UT
AND INCORPORATED AREAS

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 20 2024

SR-165 - 10yr

User-defined

Invert Elev (ft)	= 4511.65
Slope (%)	= 0.40
N-Value	= 0.030

Calculations

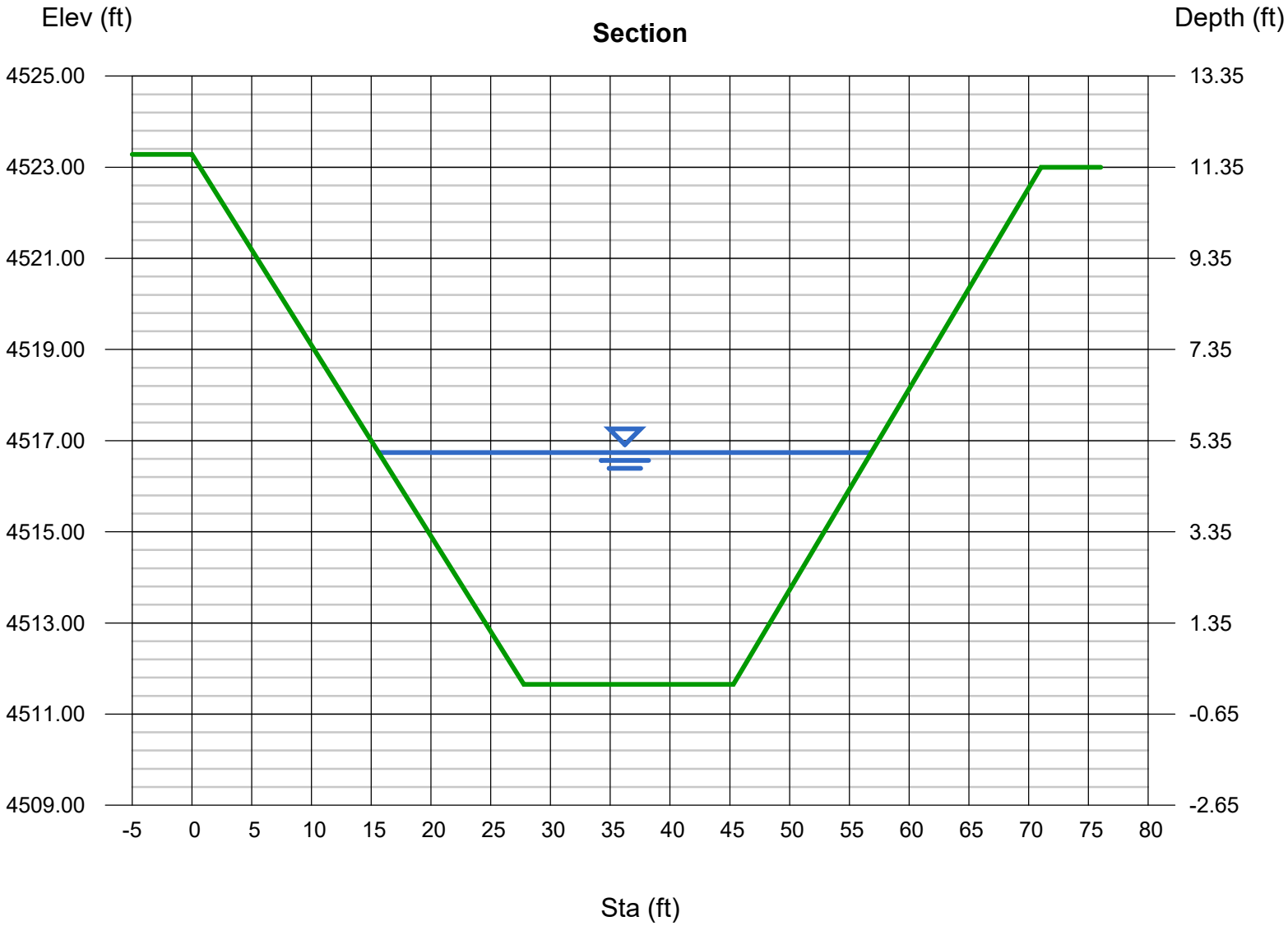
Compute by:	Known Q
Known Q (cfs)	= 1070.00

Highlighted

Depth (ft)	= 5.09
Q (cfs)	= 1,070
Area (sqft)	= 149.53
Velocity (ft/s)	= 7.16
Wetted Perim (ft)	= 43.32
Crit Depth, Yc (ft)	= 4.05
Top Width (ft)	= 41.23
EGL (ft)	= 5.89

(Sta, El, n)-(Sta, El, n)...

(0.00, 4523.28)-(27.76, 4511.65, 0.030)-(45.29, 4511.65, 0.030)-(71.04, 4523.00, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 20 2024

SR-165 - 100yr

User-defined

Invert Elev (ft)	= 4511.65
Slope (%)	= 0.40
N-Value	= 0.030

Calculations

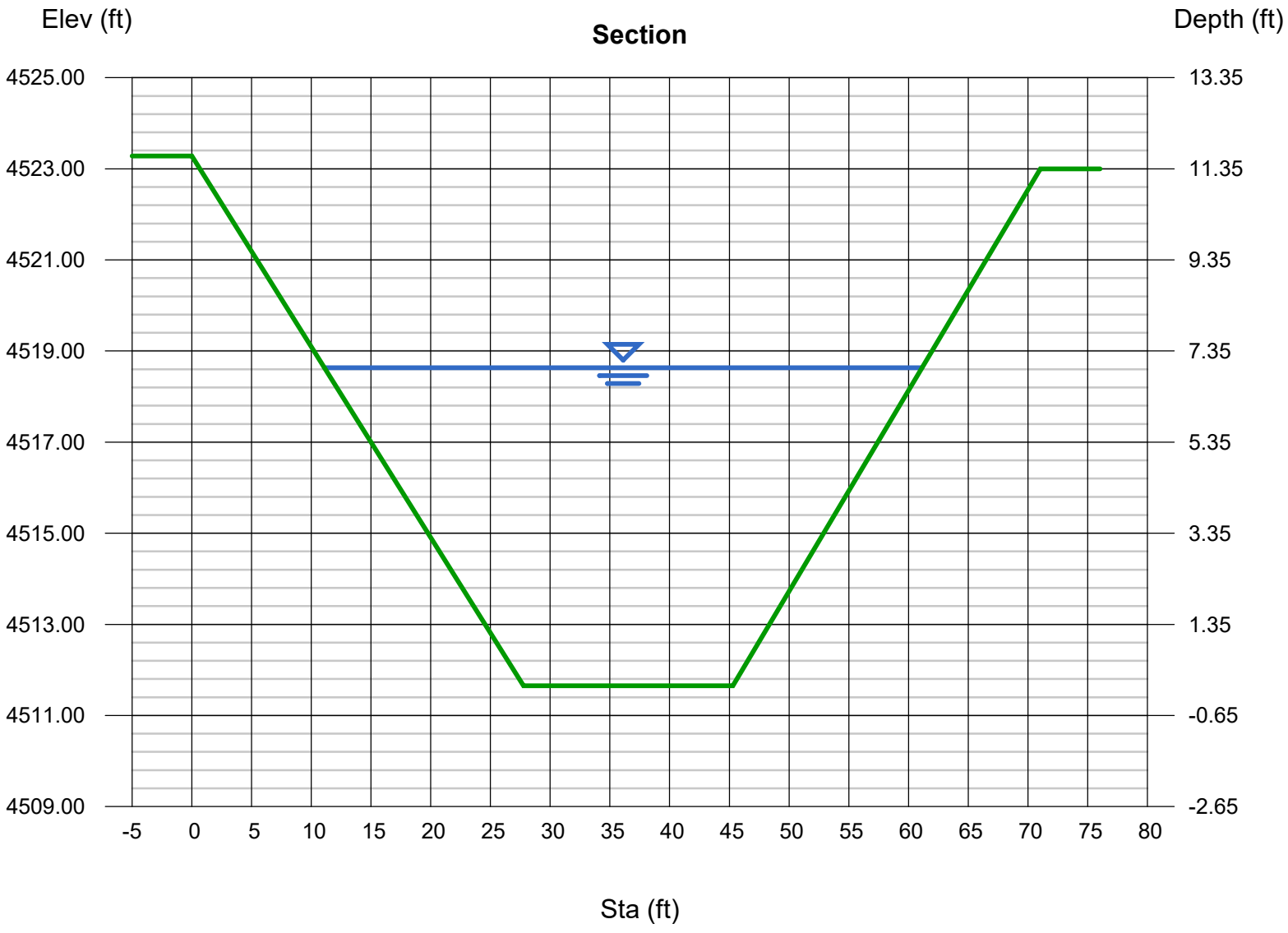
Compute by:	Known Q
Known Q (cfs)	= 2000.00

Highlighted

Depth (ft)	= 6.98
Q (cfs)	= 2,000
Area (sqft)	= 235.77
Velocity (ft/s)	= 8.48
Wetted Perim (ft)	= 52.90
Crit Depth, Yc (ft)	= 5.72
Top Width (ft)	= 50.03
EGL (ft)	= 8.10

(Sta, El, n)-(Sta, El, n)...

(0.00, 4523.28)-(27.76, 4511.65, 0.030)-(45.29, 4511.65, 0.030)-(71.04, 4523.00, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Apr 26 2024

1700 South - 10yr

User-defined

Invert Elev (ft)	= 4476.36
Slope (%)	= 0.40
N-Value	= 0.030

Calculations

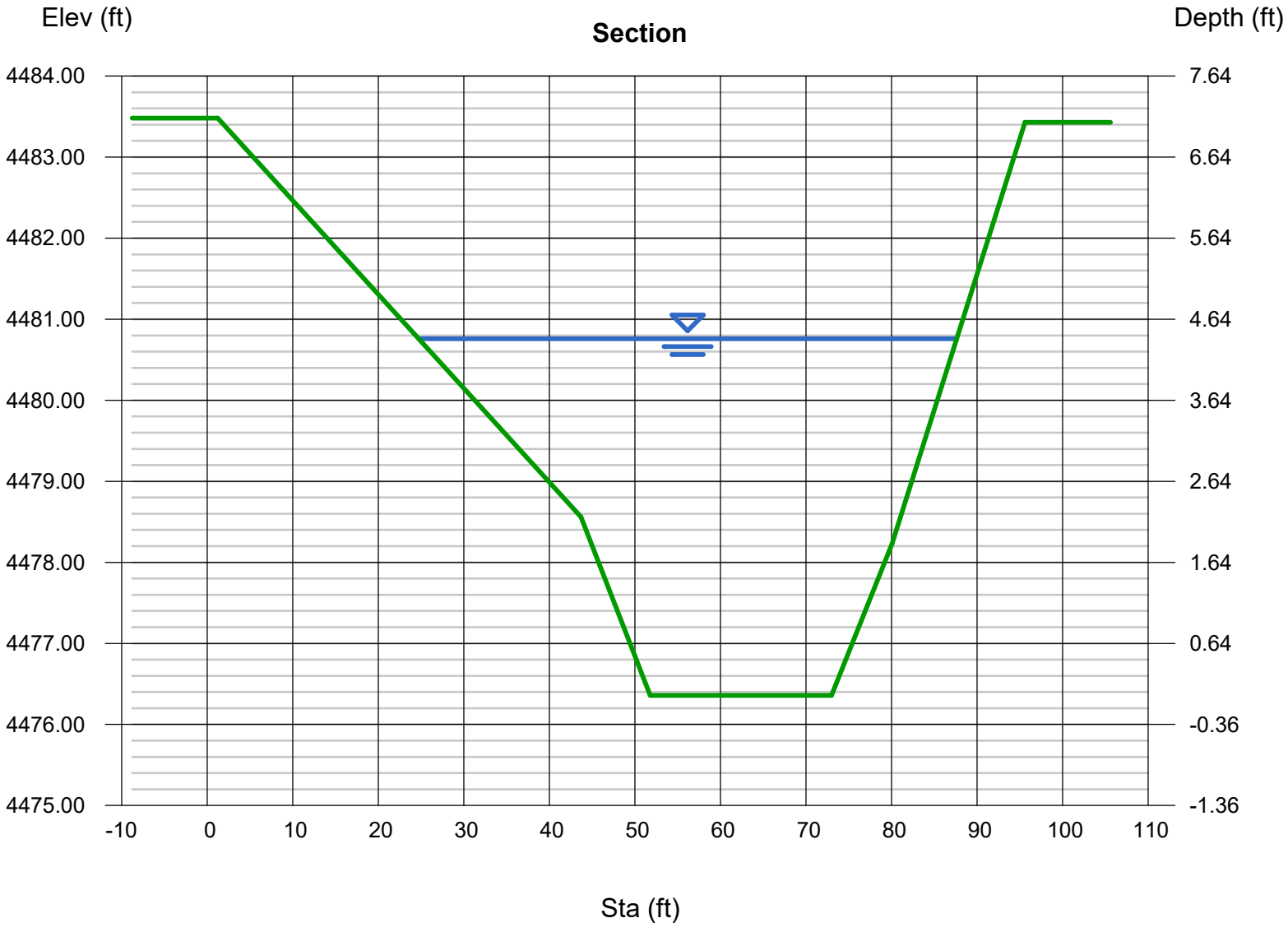
Compute by:	Known Q
Known Q (cfs)	= 1070.00

Highlighted

Depth (ft)	= 4.40
Q (cfs)	= 1,070
Area (sqft)	= 174.96
Velocity (ft/s)	= 6.12
Wetted Perim (ft)	= 63.99
Crit Depth, Yc (ft)	= 3.51
Top Width (ft)	= 62.91
EGL (ft)	= 4.98

(Sta, El, n)-(Sta, El, n)...

(1.24, 4483.48)-(43.70, 4478.56, 0.030)-(51.78, 4476.36, 0.030)-(72.99, 4476.36, 0.030)-(80.07, 4478.23, 0.030)-(95.61, 4483.43, 0.030)



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Feb 20 2024

1700 South - 100yr

User-defined

Invert Elev (ft)	= 4476.36
Slope (%)	= 0.40
N-Value	= 0.030

Calculations

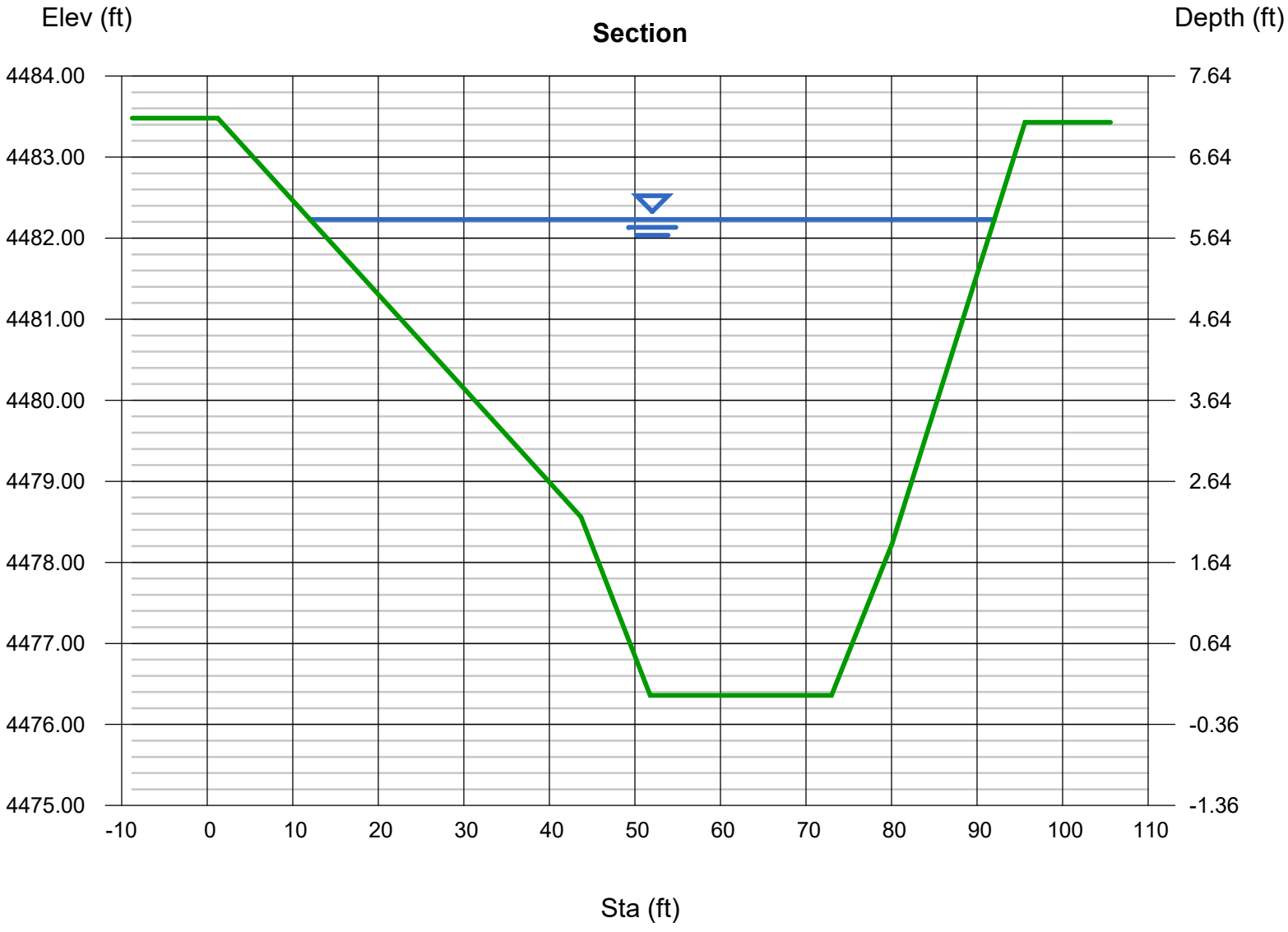
Compute by:	Known Q
Known Q (cfs)	= 2000.00

Highlighted

Depth (ft)	= 5.87
Q (cfs)	= 2,000
Area (sqft)	= 280.01
Velocity (ft/s)	= 7.14
Wetted Perim (ft)	= 81.40
Crit Depth, Yc (ft)	= 4.85
Top Width (ft)	= 80.00
EGL (ft)	= 6.66

(Sta, El, n)-(Sta, El, n)...

(1.24, 4483.48)-(43.70, 4478.56, 0.030)-(51.78, 4476.36, 0.030)-(72.99, 4476.36, 0.030)-(80.07, 4478.23, 0.030)-(95.61, 4483.43, 0.030)



APPENDIX E - MILLVILLE 750 NORTH ROW FINDINGS

civilsolutionsgroup inc.

Property Research Memo – Gap Parcel February 9, 2024

The following report details findings and professional opinions in relation to research done for the parcel of land currently shown as gap parcel 99-999-9999 on the Cache County parcel map lying directly west of State Road 165 in Nibley City, Utah (See Figure 1). The purpose being to determine possible ownership and rights associated with said parcel.

I examined the following deeds and plats recorded in the Cache County Recorder's Office:

Register of Deed and Plats:

Respa Warranty Deed Entry No. 1288298. (Adjoining property to the South)

Warranty Deed Entry No. 1203092. (Adjoining property to the North)

Warranty Deed Entry No. 1145643. (Adjoining property to the West)

Subdivision Plat of NE 1/4 of Section 16, T11N, R1E, SLB&M, Entry No. 17618, Recorded March 22, 1898. Also recorded as Record of Survey File No. 1898-0334.

Record of Survey File No. 2008-0091, performed by Peterson Land Surveying circa 2008.

Current and prior ownership plat on file in the County Recorder's Office.

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After examining the deeds and plats it is apparent that the said "gap parcel" is the same as what is referred to as "Field Street" on the Subdivision plat of the NE 1/4 of Section 16. This Field Street is shown as being 1 chain in width, (66 feet) and runs from the county road (State Road 165) westerly between lots 10 and 12 to lot 8. The recording of this plat would have dedicated this Field Street to the public as well as allowed the creation of Lot 8 which would have been land locked with no access to a public street without such.

The adjoining deed to the South, "All of lot 12, Section 16…" conform to said subdivision plat. The adjoining deeds to the North and West make coincident calls with bearings and distances as shown on said plat.

Current and prior ownership plats on file in the Cache County Recorder's office all show the field street and adjoining owners in conformance with said subdivision plat. The Record of Survey performed by Peterson Land Surveying on parcels to the North also conform with the subdivision plat.

The property is currently field space with a small shed structure located near the southern line. It appears to have been used by the adjoining owner to the South, however, acquiescence and/or adverse possession is not possible against public domain. (Utah State Code 78B-2-216)

My conclusion is that the "gap parcel" is actually a public field street, 66 feet in width and would be in ownership by the current jurisdiction for which the parcel is located.

Kevin M. Balls

Kevin M. Balls
Professional Land Surveyor
UT License No. 11207308-2201

APPENDIX F – ALDER PROPERTY WETLAND DELINEATION

Aquatic Resources Table

Resource Name	Resource Type	Approx. Size (acres)	Approx. Length (feet)
Wetland A	Emergent Marsh/ Meadow	0.649	-
Wetland B	Emergent Marsh/ Meadow	0.202	-
Wetland C	Emergent Marsh/ Meadow	7.258	-
Wetland D	Emergent Marsh/ Meadow	2.127	-
	Wetland Total	**10.236**	-
Blacksmith Fork	Perennial Channel	3.689	5,020
Big Ballard Spring	Perennial Channel	0.057	230
	Channel Total	**3.746**	**5,250**
Ditch 1	Excavated Irrigation Ditch	0.107	960
	Ditch Total	**0.107**	**960**
	Delineation Total	**14.089**	**6,210**

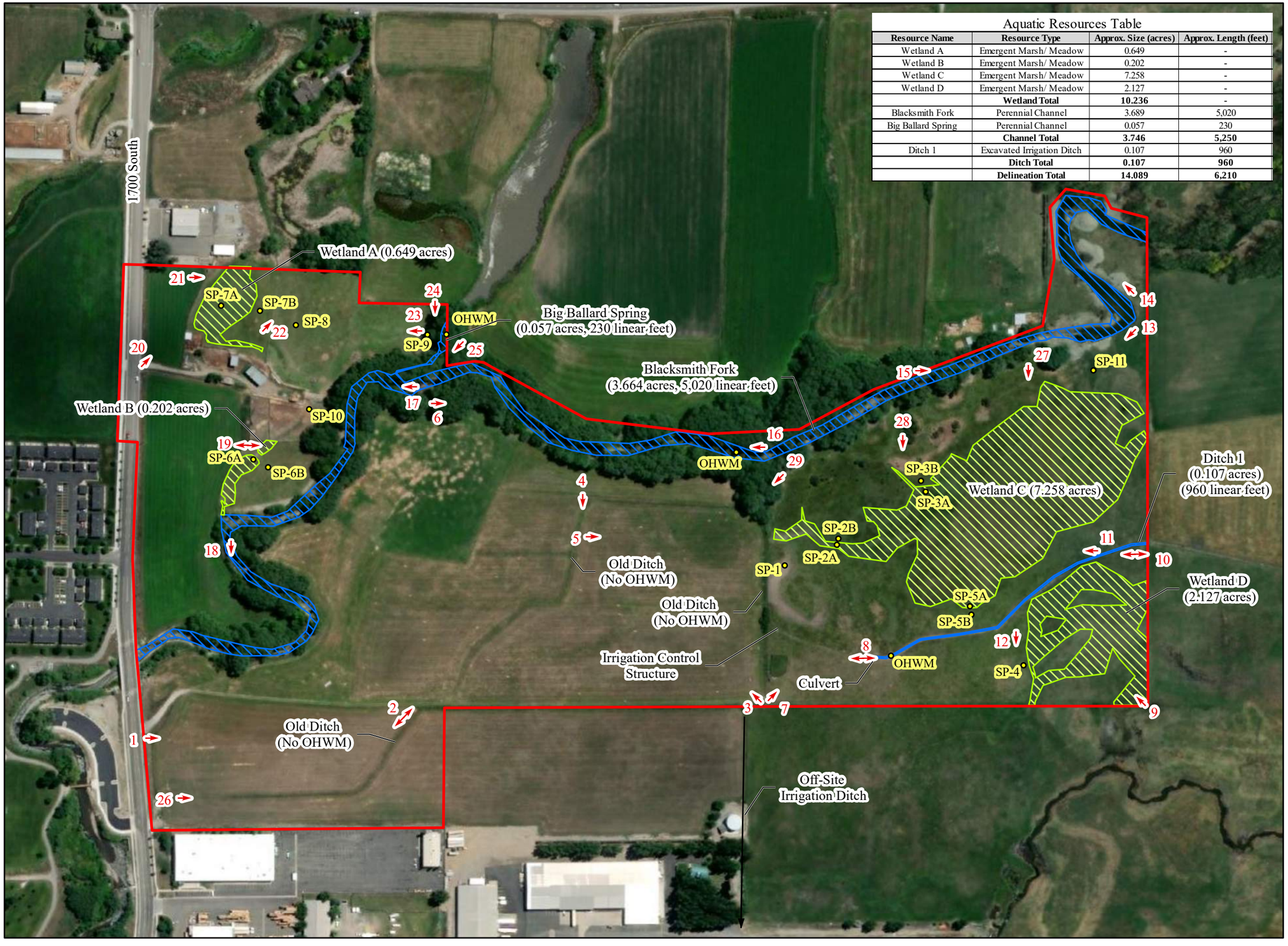

Figure 3. Aquatic Resource Delineation Map

Project Area
Open Water
Wetland
Delineation Sample Point
Photo View Direction

Map Date: 2/10/2022
Map By: C. Kline
Delineation Date: 11/23/2022
7/12/2022, 7/20/2022, and
8/3/2022 by C. Kline
Aerial Imagery: Maxar 2020

0 150 300 600
Feet
1 inch = 300 feet

Coordinate System: NAD 1983 StatePlane Utah North FIPS 4301 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

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APPENDIX G - BRIDGE UNDERPASS REFERENCE PHOTOS

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Logan Canyon: 8.5’ clearance, 10.7’ wide

1000 West: 6.7’ clearance, 10.0’ wide

APPENDIX H - PUBLIC STAKEHOLDER MEETING NOTES

civilsolutionsgroup inc.

BSF River Feasibility Study

Notes from Meetings with Municipalities – 03/04/24

Millville City

- Present:
  - Corey Twedt – City Recorder
  - Kara Everton – Development Coordinator and P&Z Secretary
  - Chad Kendrick – Director of Public Works
  - Michael Taylor – Project Consultant
- Staff generally supportive of trail layout
- City currently maintains no trails and lacks equipment to plow trails. City budget is extremely tight. Accordingly, staff is not supportive of assuming responsibility for any trail maintenance. Any further discussions of participation in maintenance would have to be brought to the City Council.
- Discussion regarding the possible jurisdictional transfer of the Alder land into the Providence City corporate boundaries.
- Millville staff is supportive of signalizing the 550 North and SR-165 intersection.

Providence City

- Present:
  - Ryan Snow – City Manager
  - Skarlet Bankhead – Community Development Director
  - Michael Taylor – Project Consultant
- Staff generally supportive of trail layout
- The trail will integrate well with other master planned trails and bicycle facilities that will connect from the BSF river to the Bonneville Shoreline Trail along 1700 South / 300 South and 550 North / 1000 South. In particular, a 10-ft trail will be installed along the north side of 1700 South / 300 South.
- Concerns over the ability to actually make use of the Millville 750 North ROW given that the same ROW to the east of the highway was ultimately abandoned by the County after legal disputes.
- Discussion regarding the possible jurisdictional transfer of the Alder land into the Providence City corporate boundaries.
- Along that section of roadway, the City was concerned that the ROW should be designed to still have park strip on both sides for snow storage.
- Providence would prefer to see signals installed between 1700 South and 2600 South at the following locations in this order of priority:
  - Providence 500 South
  - Millville 550 North / Providence 1000 South
  - Millville 750 North
- Concerns over sub-standard clearance at 1700 South underpass.

- City Staff concerned about flooding through the Alder property and possible recurrent inundation. Providence City staff recommended examining flooding patterns further to determine which sections of the trail should be installed with a concrete pavement section.
- Consultant explained that UDOT would be constructing the facility should it be funded.
- The City is open to maintaining the trail themselves. They would be interested in asking the Alder Family to dedicate a small piece of ground for a maintenance shed so the plow equipment could be permanently housed on the westside of the highway to service this trail segment.

Logan City

- Present:
  - Darren Farar – City Engineer
  - Russ Holley – Senior Planner
  - Landis Wenger – Cache County Trails Planner
  - Michael Taylor – Project Consultant
- Logan City & Cache County's respective trail master plans are about 7 years old and both entities are seeking funding to redo them in the near future.
- Explained the new Utah Trail Network Program and how UDOT would be building these facilities, but would be relying on local municipalities to maintain them until UDOT has a critical mass to justify purchase of equipment to maintain them themselves. UDOT would potentially be offering stipends to Cities who participate; though this is pending further discussion.
- Concerns from City Staff about running the trail along the highway. Landis explained that construction of that segment would not preclude a redundant trail from being constructed along the riverfront in the future.
- Discussed the viability of the 1700 South bridge crossing. Staff expressed ongoing maintenance and clearance concerns. Some preference expressed for an above-grade crossing given these deficiencies. Above-grade crossing would have to address visibility concerns.
- Discussed that pushing the crossing lower below the water level would require some sort of pump system. Darren to provide Main Street trail underpass plans to help illustrate how this could be done if this option were to be pursued.
- Trail fits very well with City's master plan. Construction of this trail would likely prompt the City to prioritize the construction of a trail segment from Blackhawk Park to SR-165 to connect this trail to the 800 West trail and Logan River trail.
- If concrete section was to be used, staff recommended sawcuts at joints for a smoother ride.

Notes from Meetings with UDOT Staff – 03/05/24

- Present:
  - David Alger – UDOT Region 1 Permit Engineer
  - Jeff Gilbert – Cache MPO Transportation Planner
  - Landis Wenger – Cache County Trails Planner
  - Emily Fletcher – Cache County Assistant Trails Planner

- Michael Taylor – Project Consultant

- David Alger not opposed to running the trail in the ROW, nor to utilizing the existing structure as an underpass at SR-165.
- David Alger suggested running the trail along the eastside of the highway from the SR-165 bridge over the BSF River to 1700 South and then west to Blackhawk Park as a way to save money.
- David Alger to review proposed cross-sections and provide further design recommendations.

UDOT Region 1 Permits

Clear Form

Application 24-024 (147238) SR-165, Blacksmith Fork River Trail (0)

OLP # 147238 **Date** Mar 18, 2024

Route SR-165 **Begin Milepost** 8.510 **End Milepost**

Department	Review Stamp	Approved	More Info Needed	Variance Approved
Permit Engineer	REVIEWED By David Alger at 1:27 pm, Apr 18, 2024	○	◉	☐
		○	○	☐
		○	○	☐
		○	○	☐
		○	○	☐

Notes

PRE-APPLICATION MEETING SUMMARY

Pre-App Number: PA-146900

Property Owner Information		Applicant Information	
Name:	Landis Wenger / Cache County	Name:	Civil Solutions Group, Inc.
Mailing Address:	179 N Main Street	Mailing Address:	540 W Golf Course Rd, Ste. B1
City, State, Zip:	Logan, UT 84321	City, State, Zip:	Providence, UT 84332
Email:	landis.wenger@cachecounty.org	Email:	mtaylor@civilsolutionsgroup.net
Phone:	4357551646	Phone:	4358904498

Purposed Access Information

Physical Address:	550 North SR-165 Millville, UT 84321	Parcel Number:	99-999-9999
State Route ID:	0165	Milepost Marker:	8.51
Latitude:	41.69150512	Longitude:	-111.83416566
Access Width(in feet):	12	Access Use:	Public Street
Access Category:	Systm Priority Urban	Side of Highway:	West

PROJECT NAME AND BRIEF SCOPE OF WORK DESCRIPTION

Blacksmith Fork River Trail

The County is proposing the construction of approximately 2,900 linear-feet of public shared-use path trail that would be installed within the UDOT SR-165 ROW.

Meeting Date	Time Spent	Participant Name	Representing	Email	Phone
05-MAR-24		Austin LaRue	UDOT	alarue@utah.gov	8017218846
		David Alger	UDOT	dalger@utah.gov	8016201654
		Dustin Jenkins	UDOT	dustinjenkins@utah.gov	8013897282
		Rodger Genereux	UDOT	jaygenereux@utah.gov	8016786283

Total Time Spent:

Access Application Review Level Fee: $2,300.00

SITE PLAN / ACCESS NOTES

Site Plan & Access Notes:
Trail alignment option - To avoid the underpass issues with the existing box culvert and flooding issues, consider keeping the trail on the South side of the highway (half of land is being developed and will need to coordinate this update) and crossing at the signal at 1700 S/300 S.
Shared use path to be 12 ft wide with any shy distance required at obstacles.
Comply with PROWAG
Design location to allow for at least a 12 ft shoulder/turn lane and M1 curb and gutter.

TRAFFIC IMPACT STUDY NOTES

Traffic Impact Notes:
None

TIS WAIVER

Approved: N **Name:** **Title:**

UTILITIES NOTES

Utility Notes:
None

DRAINAGE NOTES

Drainage Notes:
None

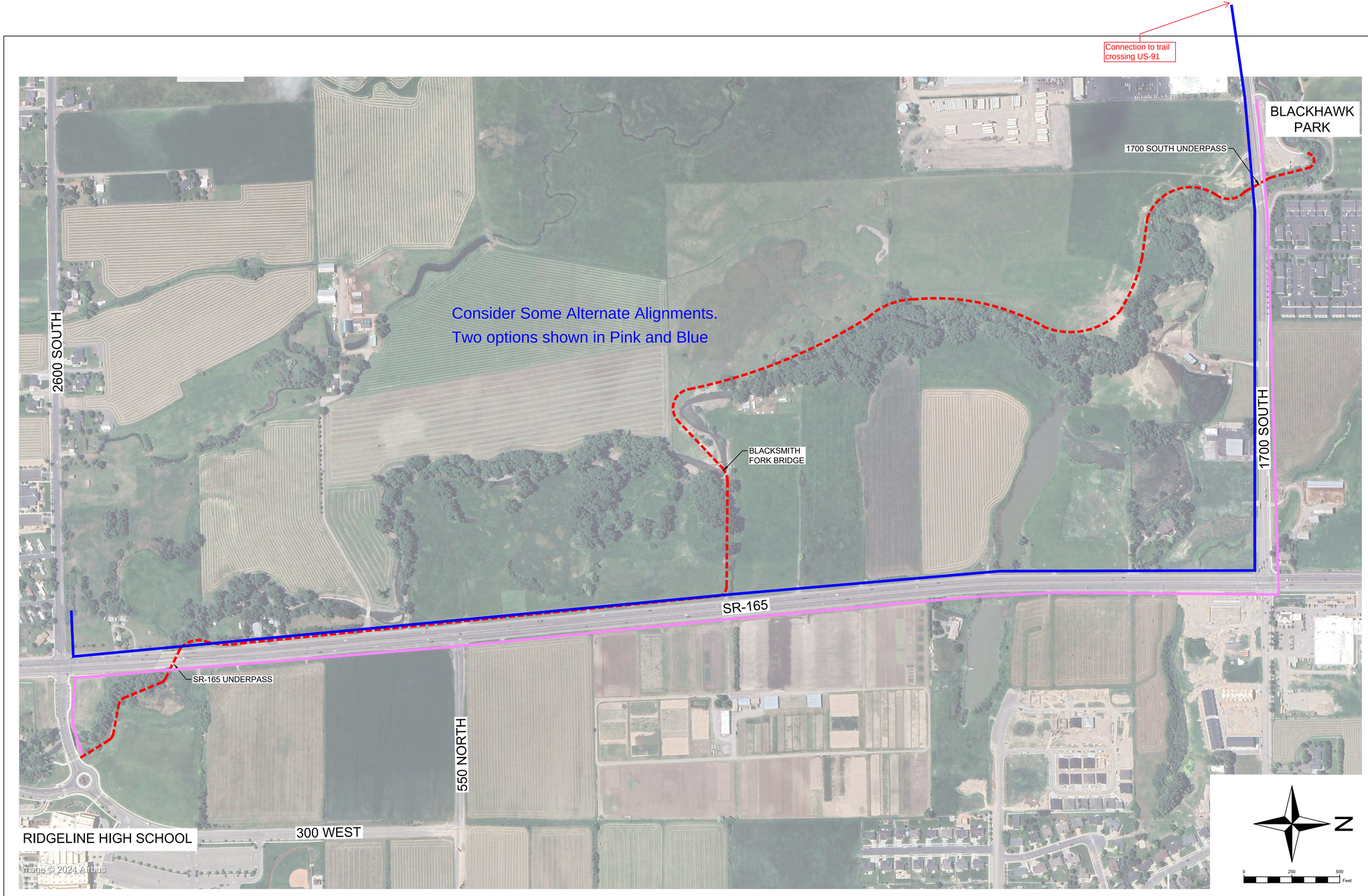
OTHER NOTES

Permit Review Fee:
Permit Review Fee Level - Waived (County trail project)
Required Documents and Recommended Mitigation Options - for more Information visit: https://www.udot.utah.gov/connect/business/permits/access-management/
Agreements (e.g. Drainage, Cross Access, and Phased Development) are to be signed and recorded as the final documents after plan approval and before the permit is issued.
Complete Site Plans

Other Notes:

PRE-APPLICATION MEETING SUMMARY

Pre-application notes are valid for 12 months. Approved Conditional Access Permits have 12 months from the date of approval to acquire an Encroachment Permit to build the access.
Required Default Documents
Plan Set
Documents Required / Identified at Pre-Application Meeting



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UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net

BLACKSMITH FORK TRAIL

TRAIL OVERVIEW
CACHE COUNTY, UT

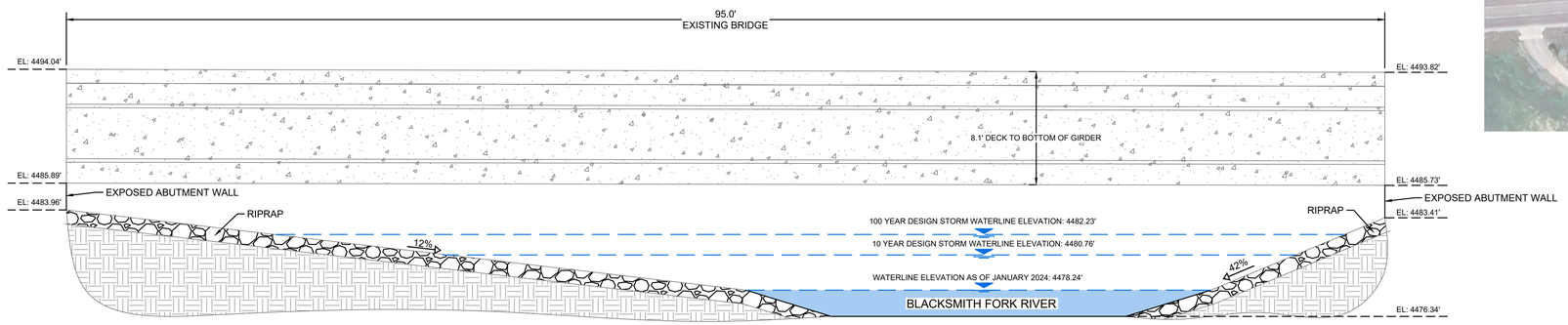
MARK:	DATE:	DESCRIPTION:

PROJECT #: 23-369
DRAWN BY: L. WESTON
PROJECT MANAGER: M. TAYLOR
ISSUED: 3/4/2024

OVERVIEW

1 OF 1

P:\2023\23-369 BSF River Trail\Civil\AutoCAD\Exhibit\23-369 Trail Overview

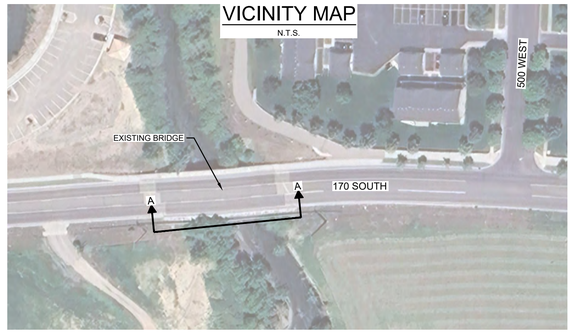


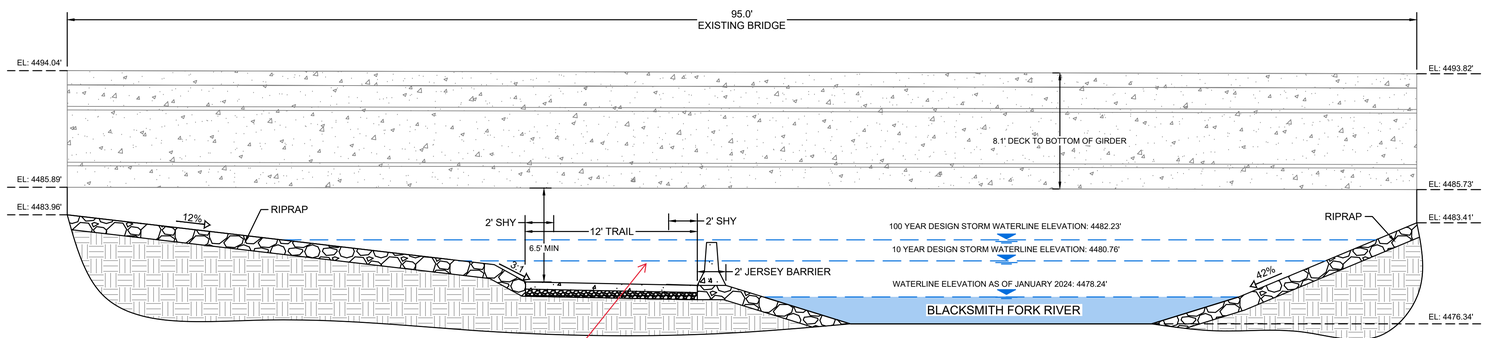
SECTION A-A

1700 SOUTH BRIDGE
EXISTING CONDITIONS

SCALE: 1" = 5'

NO VERTICAL EXAGGERATION





SECTION A-A

Recommended to consider a different barrier that can prevent the flooding issue every year that would be anticipated with this design.

1700 SOUTH BRIDGE
PROPOSED IMPROVEMENTS

SCALE: 1" = 5'

NO VERTICAL EXAGGERATION

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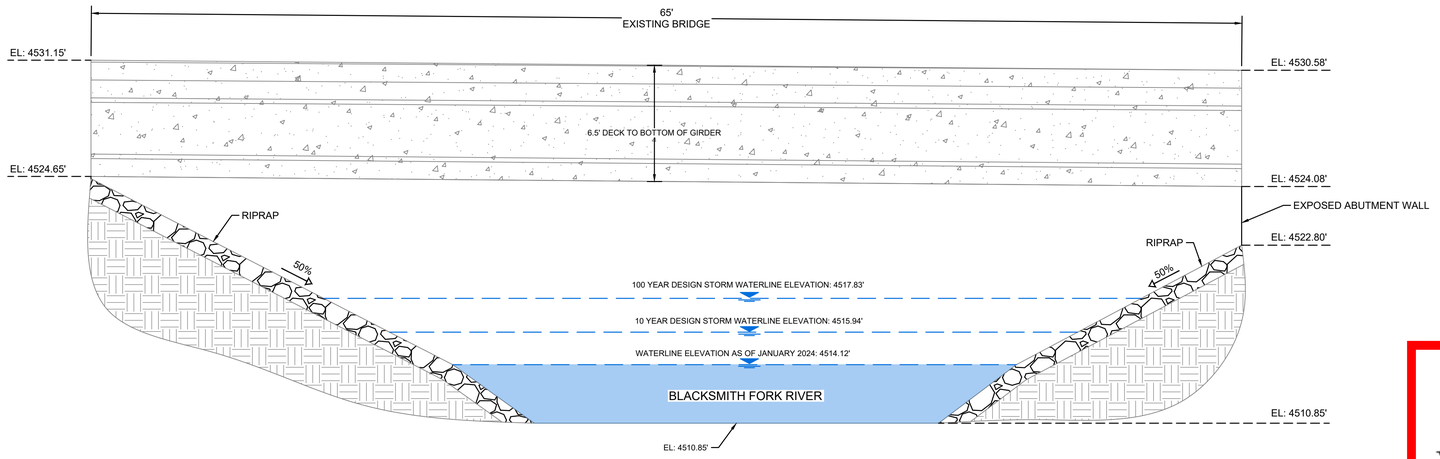
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net

BSF RIVER TRAIL X-SECTIONS
EXHIBIT
CACHE COUNTY, UT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 23-369
DRAWN BY: L. WESTON
PROJECT MANAGER: M. TAYLOR
ISSUED: 3/5/2024

1700 SOUTH BRIDGE

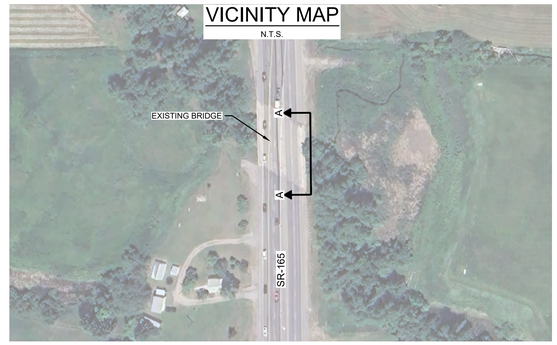


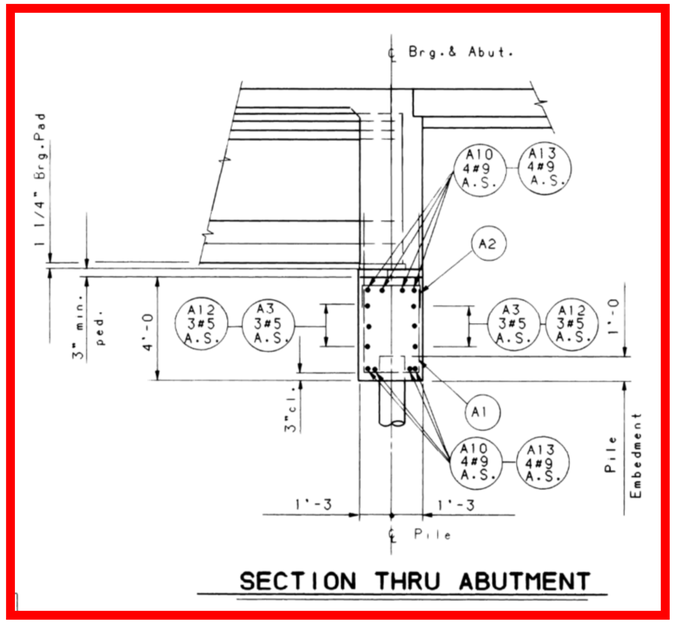
SECTION A-A

SR-165 BRIDGE
EXISTING CONDITIONS

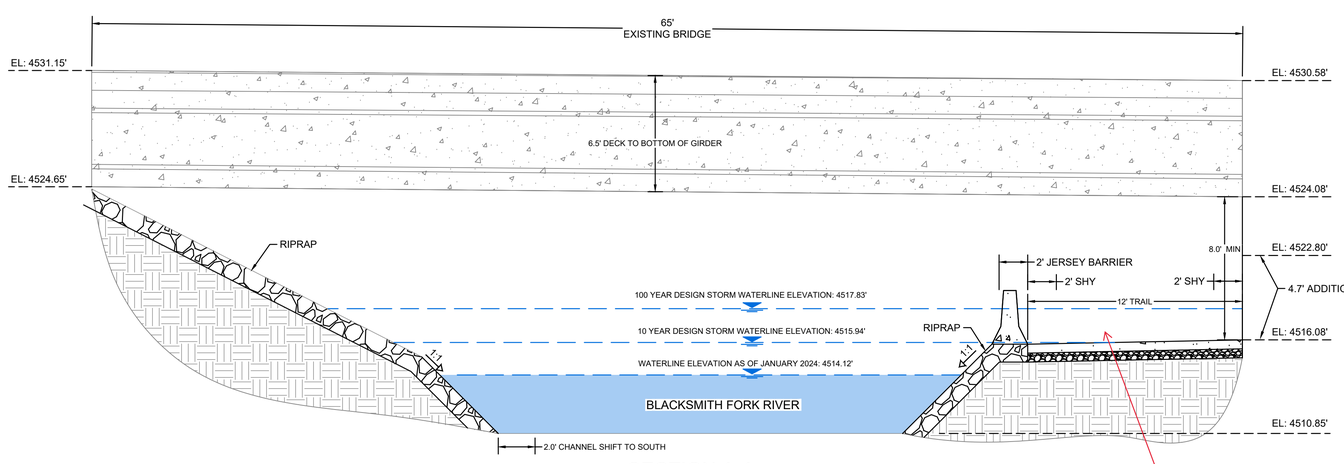
SCALE: 1" = 4'

NO VERTICAL EXAGGERATION





SECTION THRU ABUTMENT



SECTION A-A

Per original plans, the abutment wall is only 4ft (approximately) tall as measured from the underside of girder. This proposal would expose about 4'ft minimum of driven pile foundation. This isn't acceptable as piles need to remain fully embedded in the ground. See screenshot above that depicts abutment height.

Recommended to consider a different barrier that can prevent the flooding issue every year that would be anticipated with this design.

SR-165 BRIDGE
PROPOSED IMPROVEMENTS

SCALE: 1" = 4'

NO VERTICAL EXAGGERATION

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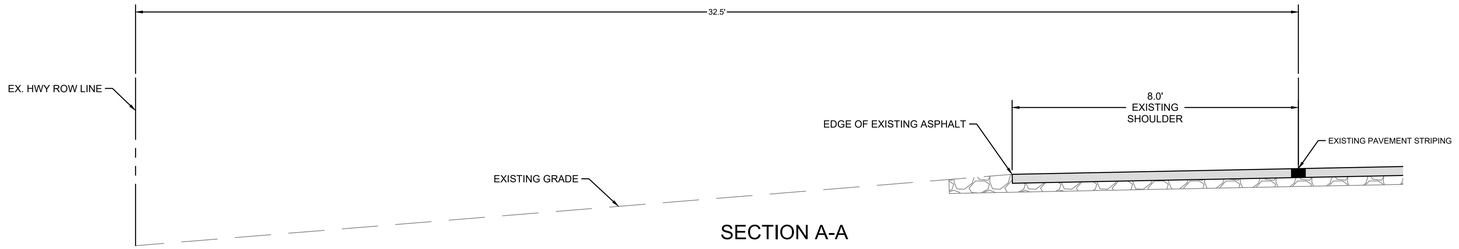
BSF RIVER TRAIL X-SECTIONS
EXHIBIT
CACHE COUNTY, UT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 23-369
DRAWN BY: L. WESTON
PROJECT MANAGER: M. TAYLOR
ISSUED: 3/5/2024

SR-165 BRIDGE

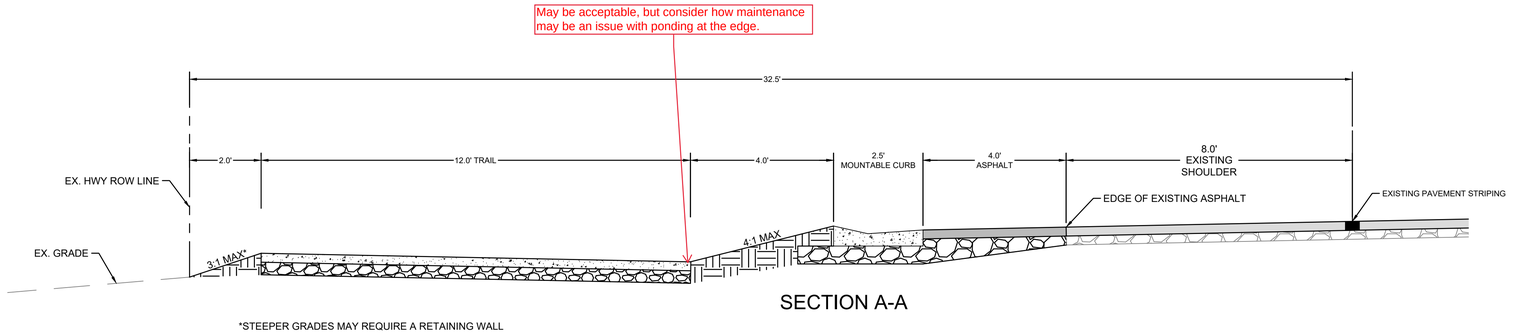


SECTION A-A

SR-165 EXISTING CONDITIONS

SCALE: 1" = 2'

NO VERTICAL EXAGGERATION



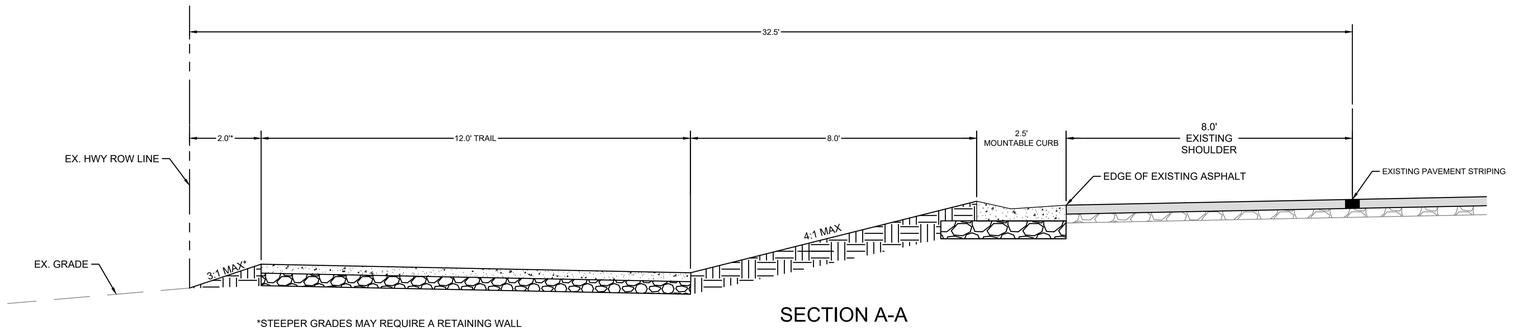
SECTION A-A

*STEEPER GRADES MAY REQUIRE A RETAINING WALL

SR-165 (W/ CURB & TURN LANE)
PROPOSED IMPROVEMENTS

SCALE: 1" = 2'

NO VERTICAL EXAGGERATION



SECTION A-A

*STEEPER GRADES MAY REQUIRE A RETAINING WALL

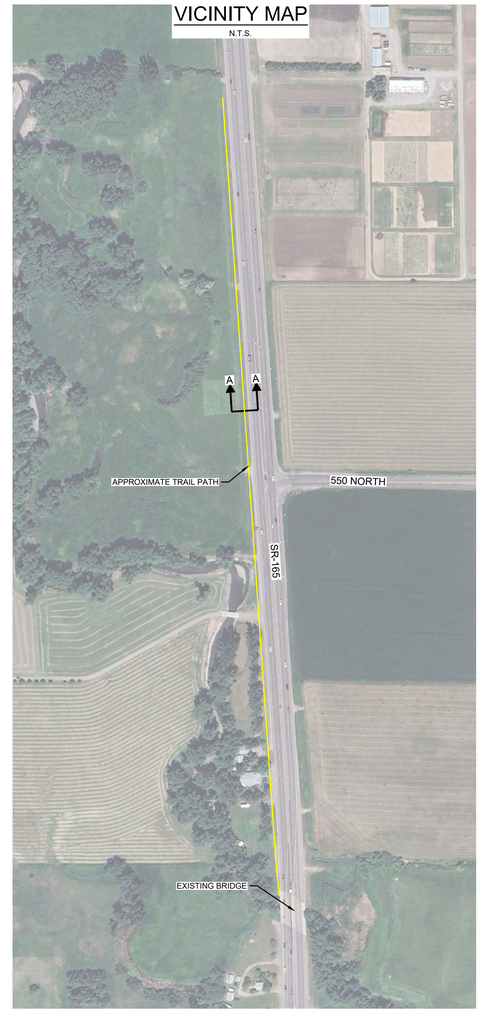
SR-165 (W/ CURB)
PROPOSED IMPROVEMENTS

SCALE: 1" = 2'

NO VERTICAL EXAGGERATION

VICINITY MAP

N.T.S.



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BSF RIVER TRAIL X-SECTIONS

EXHIBIT

CACHE COUNTY, UT

MARK:	DATE:	DESCRIPTION:

PROJECT #: 23-369

DRAWN BY: L. WESTON

PROJECT MANAGER: M. TAYLOR

ISSUED: 3/5/2024

SR-165

State of Utah
Department of Transportation

Active Transportation Cooperative Agreement	Local Agency(ies): Logan City, Nibley City, Providence City	Estimated Local Contribution: $ 0 Estimated UDOT Funding: $ 4,000,000
PIN: 21894 CID: 74836 Project #: S-TR01(1)	Total Project Value Estimate: $4,000,000 (Includes Local Contribution if Applicable)	Date Executed:

This Active Transportation Investment Funds ("ATIF") Program Cooperative Agreement (the "**Agreement**"), made and entered into as of the "Date Executed" stated above, by and between the UTAH DEPARTMENT OF TRANSPORTATION, an agency of the State of Utah (hereinafter referred to as **"UDOT"**) and the following: LOGAN CITY, NIBLEY CITY, and PROVIDENCE CITY, (hereinafter referred to as "**Local Agency**"), (UDOT and the Agency are collectively referred to as **"Parties."**)

RECITALS

WHEREAS, the Utah State Legislature appropriated money for the ATIF Program (**"Program"**) pursuant to Utah Code Section 72-2-124(11), and Program funds must be administered by UDOT when a scope of work has been approved by the Utah Transportation Commission pursuant to Utah Code 72-2-124 and 72-1-304;

WHEREAS, the Program supports the creation and management of the Utah Trail Network ("**UTN**"), which will consist of a statewide network of trail facilities owned and operated by UDOT, and that any trail UDOT has constructed or will construct may be adopted into the UTN at an unspecified future date;

WHEREAS, on _____ , 20__, the Utah Transportation Commission approved a scope of work for UDOT to design and construct a shared use path located approximately at: _____("**Trail**," further described in Exhibit A and attached to this Agreement and incorporated herein). The Trail will have a uniform depth of three (3) to six (6) inches of pavement and a uniform width of eight (8) feet on either side of the Trail centerline (the total width of which is referred to as the Trail's "**Right of Way"**. The total width of the actual pavement may be less than the sixteen (16) feet of defined Trail Right of Way.) The Trail will be constructed using appropriated ATIF funds in the amount of $ 9,000,000.00 (the "**Funding,**" further detailed in paragraph C of this Agreement) to perform the design and construction of the trail (the "**Work**");

WHEREAS, this Agreement addresses: (1) the Parties' role in the Work, (2) the ownership of the Trail and Right of Way, (3) the funding for the Trail, (4) the operation and maintenance responsibilities of the Trail and Right of Way and its improvements and betterments, and (5) access to the Trail ("License"), as well as miscellaneous terms.

AGREEMENT

THEREFORE, in consideration of the foregoing recitals, which by this reference are incorporated into this Agreement, and the following terms and conditions, the Parties agree as follows:

A. **Work.**

1. Scope of the Work. UDOT is solely responsible for the Work, which is outlined in the Scope of Work(s) (attached as Exhibit B).

2. Roles and Responsibilities Concerning the Work.

   a. UDOT. UDOT will use the Funding outlined in Paragraph C to engage in its standard Design-Bid-Build process ("DBB") to complete the Work, which includes UDOT retaining consultants/contractors to design and construct the trail, and UDOT overseeing the Work.

      Parties acknowledge that UDOT will enter into a separate agreement with one or multiple consultant(s)/contractor(s) ("Contract(s)") to perform and complete the Work.

      Upon request by the Local Agency, UDOT shall disclose to the Local Agency documents in the Contract(s) that are relevant to the Work, including detailed plans or technical specifications, subject to any applicable provisions under the Government Records Access and Management Act ("GRAMA"), Utah Code § 63g-2-101 et. seq.

   b. Local Agency. The Local Agency shall assign a Local Project Manager to:

      i. Act as the single representative of the Local Agency to coordinate with UDOT throughout the Project, as needed, including, but not limited to: (1) informing UDOT of any information that might affect the Work, (2) ensuring that the Local Agency will continuously uphold its responsibilities under this Agreement, and (3) apprising the Local Agency's councils, commissioners, committees, or residents of any significant updates on the Work.

      ii. Ensure any Local Agency funding contributions (if applicable) are successfully transferred to the Project in the timeframes specified in Section C of this Agreement.

3. Temporary Construction Easement ("TCE"). Parties agree UDOT requires a TCE in UDOT's name for the Work, which shall be executed between the Parties in a separate instrument.

4. Final Acceptance. Parties agree that Final Acceptance of the Work is to be consistent with any final acceptance terms set forth in the Scope of Work.

   Upon Final Acceptance of the Work, the Work is deemed to be completed. At this time, Local Agency releases UDOT and its employees, agents, contractors, and consultants from all claims and losses of every kind (including, but not limited to, claims, demands, damages, liabilities, liens, and suits, whether or not involving negligence) that are in any way connected with or arise from the Work.

B. **Ownership of Land and Improvements.**

1. Ownership of Land. Providence/Millville/Local Agency shall own title to the interest in the Right of Way in fee title. UDOT has no obligation to commence Work for the Trail until such ownership has been established.

2. Ownership of the Improvement. Upon completion of the Work for the Trail, the Local Agency shall own the Trail improvements until such time when UDOT determines to place the Trail within the UTN. If UDOT makes such a determination, UDOT shall give the Local Agency six (6) months' advance written notice of UDOT's intent to place the Trail within the UTN, and the Local Agency may provide written comments to UDOT concerning the Trail. Upon adoption of the Trail into the UTN, the following shall apply:

   a. The Local Agency shall transfer fee title or a perpetual easement for the Right of Way in consideration of UDOT's investment of Funding to construct the Trail.

   b. The Trail improvements shall automatically revert to UDOT upon the Local Agency's transfer of the Right of Way to UDOT.

   c. The Local Agency's obligation to perform Operations and Maintenance of the Trail, as provided in Section D of this Agreement, shall be renegotiated within a separate agreement.

C. **Funding.**

1. Funding Contributions. As part of the Program, no Local Match amount is required from the Local Agency, but the Local Agency may contribute funds to the Work on a voluntary basis. Local Agency may not contribute additional funds to the Work, including non-UDOT administered State funding, local funding, county funding, and federal funding unless approved by UDOT in writing.

   If the Local Agency agrees to contribute funds to completing the Work, that contribution(s) is shown in the table in paragraph C.2. If there is such a contribution, then the Local Agency shall transfer such funds described in the table in paragraph C.2. to UDOT (as a lump sum) in the form of a check or money order upon the execution of this Agreement.

2.

Fund	Prior	FY 2025	FY 2026	Total	State Aid	Other	Percent
UDOT (ST_ATIF)	$	$4,000,000	$	$4,000,000	$	$	100%
Local Agency	$	$	$	$	$	$	0%
Total	$	$4,000,000	$	$4,000,000	$	$	100%

3. Payment Application and Reimbursement of Excess Funds. The funding in the above table in paragraph C.2. will be applied to the Work on a pro-rated basis to pay any applications for the Project. If UDOT determines additional funding is required then UDOT may secure and add funding as needed from internal sources, subject to approval by the Utah Transportation Commission. In the event UDOT cannot secure additional funding for the Work, then UDOT may reduce the Scope of Work, or cancel the Work in its entirety. Once the Work has been completed, and if there are excess monies contributed by the Local Agency outlined in the above paragraph C.2. that UDOT has not applied to the Work, then UDOT shall return to the Local Agency its pro-rated share of those excess monies.

In the event the Local Agency contributes funds to completing the Work, as contemplated in the above paragraph C.1., then UDOT will exhaust those funds first before it applies any UDOT (ST_ATIF) funds to completing the Work.

4. Quarterly Statements. If the Local Agency has contributed funds pursuant to paragraph C.1., then the Local Agency may request the UDOT Comptroller's Office to provide the Local Agency with a quarterly statement reflecting a cost summary for the Work.

5. Betterments. This Agreement and the funds detailed in the table in C.2. only apply to the work approved as part of the Project. Betterments or other work not detailed in Section A shall not be paid for with the Project Funding. Parties agree to execute a separate agreement for any proposed betterments, including standards and specifications for those betterments and the funding thereof. In any such agreement, and unless specified otherwise in the Scope of Work, UDOT shall not own any betterments and shall not be responsible for any of their associated costs.

D. **Operations and Maintenance.**

1. General Terms. After completion of the Work, the Local Agency agrees to keep the Trail in a good, proper, and safe condition for use by the public and to perform all maintenance work in connection with the Trail, including, but not limited to, maintenance, ongoing or otherwise, as specified in this paragraph D.1., and in the Maintenance Activities provision in paragraph D.2.

As the Project spans multiple Agencies/jurisdictions, the maintenance responsibilities set forth in this agreement are to be divided and executed as detailed and attached in Exhibit C.

Parties acknowledge that the Local Agency is solely responsible for funding any of the maintenance activities it performs on the Trail, including those required under this Agreement. If the Local Agency fails to perform the maintenance activities as contemplated in this Agreement or in the Maintenance Activities provision in paragraph D.2, then those maintenance activities are considered delinquent, and UDOT may compel the Local Agency to cure those delinquent maintenance activities within thirty (30) days of UDOT notifying the Local Agency. If the Local Agency fails to cure the delinquent maintenance activities within that thirty (30) day period, then Local Agency agrees that UDOT may enter the ROW and perform the work through its employees, agents, contractors, and/or consultants. In this instance, once UDOT or its employees, agents, contractors, and/or consultants have completed that work, UDOT shall submit to the Local Project Manager an invoice of the total actual costs of performing the work. The Local Agency shall reimburse UDOT for those costs within thirty (30) days of receiving the invoice, in one lump sum.

The Local Agency is responsible for ensuring the Trail is in good, usable condition, year-round, seven days/week, and at all hours of the day. "Good, usable condition" for the purposes of this Agreement means the Trail is unimpeded, accessible, and fully capable of accommodating pedestrian travel, including foot traffic, bicycles, wheelchairs, and any other mobility device under the Americans with Disabilities Act. Parties acknowledge that adverse weather events or other acts of God might create obstacles on the Trail or in its direct vicinity, or destroy sections of the Trail, thus preventing the Trail from being in good, usable condition. In this instance, the Local Agency agrees to rectify any such impediments as soon as reasonably possible. The Local Agency is solely responsible for such rectification efforts, including costs.

Adverse weather or acts of God notwithstanding, Parties acknowledge that the Trail might at times fall into disrepair or be in need of reconstruction. The Local Agency agrees to perform all activities required to repair or reconstruct the Trail.

The Local Agency further agrees that it is solely responsible for providing any necessary security or safety measures on the Trail, including, but not limited to, law enforcement patrol of the Trail, and litter control.

In the event of the interest in the Trail reverting to UDOT, as outlined in Paragraph B.2 of this Agreement, Parties agree UDOT may assume any or all of the rights and responsibilities outlined in this Section D of this Agreement.

The Parties agree that for as long as the Local Agency is obligated to perform operations and maintenance for the Trail and its Right-of-Way, the Local Agency shall have access for that purpose under the License stated in Section E of this Agreement.

2. Maintenance Activities. If applicable, the Local Agency is responsible for ensuring, at minimum, the following maintenance activities:

   - Weed/Vegetation Control: As needed, mow vegetation directly adjacent to the Trail. Perform weed/vegetation mitigation in areas that directly impact Trail users.

   - Pavement/Crack Sealing: Ensure that the Trail surface pavement is in good, usable condition. Includes periodic preservation of pavement material using seal coats. Mitigate any expansion cracking of Trail surface material with crack seal compound as needed.

   - Erosion Control: Repair any erosion of shouldering material, or any other material that supports the Trail surface material. Sweep/remove any silt or sediment material from Trail surface, as needed, that might interfere with Trail users.

E. **License**.

1. Subject to terms stated elsewhere in this Agreement, the Local Agency and UDOT each hereby provide to each other, their employees, agents, contractors, and/or consultants a non-exclusive license to enter onto and use the Trail Right of Way for purposes authorized under this Agreement.

F. **Miscellaneous Terms.**

1. Termination. Prior to completion of the Work, UDOT may terminate this Agreement, or any portion hereof, at its convenience and upon written notice to the Local Project Manager.

   After completion of the Work, UDOT may terminate this Agreement, or any portion hereof, at its convenience and upon written notice to the Local Project Manager, if any of the following occur:

   a) The Trail is abandoned for a period of at least six (6) months. ‘Abandoned’ for the purposes of this Agreement means being in a state of desertion, general neglect, or disrepair, or being relinquished of all activities necessary for continuous Trail operation; or

   b) The Local Agency fails to perform any obligations stated in this Agreement and fails to cure that default within ninety (90) days following receipt of written

notice issued by UDOT; provided, however, that if the obligation is not something that can be reasonably performed within ninety (90) days of the written notice, UDOT may provide a reasonable additional extension of time within which the Local Agency may perform the obligation.

2. Encumbrances. The Local Agency may not allow a lease, encumbrance, or any other interest to be placed on the Trail, and it shall hold the Trail free from such interests.

   The Local Agency agrees that if it should ever be dissolved or become unable to perform its obligations under this Agreement, it will transfer its interests and obligations under this Agreement to another political subdivision of the State of Utah that is acceptable to UDOT and is capable of fully performing this Agreement.

3. Ability to Enter into and Perform Agreement. Parties hereby represent that each party has the power and authority necessary to sign this Agreement and to perform all of their obligations under this Agreement as a public entity.

4. Indemnity. The Local Agency agrees to indemnify, defend, and save harmless UDOT, its employees, agents, contractors, and consultants from and against all losses of every kind (including but not limited to any claims, suits, costs, environmental contamination damages and penalties, and loss from personal injuries and property damage) that arise from or relate to (i) UDOT's Work; or (ii) any wrongful or negligent act or omission of the Local Agency or its employees, agents, contractors and consultants in connection with entering or performing this Agreement. The Local Agency is a governmental entity subject to the Utah Governmental Immunity Act, and nothing in this paragraph is intended to waive any provision of the Utah Governmental Immunity Act, provided said Act applies to the loss in question. This indemnification obligation shall survive the expiration or termination of this Agreement.

5. Insurance. Each party agrees to require its contractors and consultants working in connection with this Agreement, if applicable, to maintain insurance in amounts reasonably sufficient to pay for the contractor's or consultant's negligent acts or omissions.

6. Term. The initial term of this Agreement will be ten (10) years. At the end of the ten (10) year period, this Agreement will be automatically renewed by five (5) year increments unless terminated in accordance with any termination provision contemplated in this Agreement.

7. Miscellaneous.

   a) Notice. Any Party may give a written notice under this Agreement by delivering it to the following physical address (an email may be used in addition as a courtesy), and notice is effective upon delivery when delivered by hand or by overnight delivery service with confirmation of delivery (or, if placed in the U.S. mail, notice is effective three days after such notice receives a postmark):

To UDOT:	To Local Agency:
UDOT 4501 South 2700 West Box 143600 Salt Lake City, UT 84114 Attention: _____ With a copy to: Assistant Attorney General (UDOT) 4501 South 2700 West Box 143600 Salt Lake City, UT 84114	

b) Duty to Comply. The parties agree to undertake and perform all further acts that are reasonably necessary (except when expressly prohibited by law) to carry out the intent and purpose of the Agreement and to assist UDOT with maintaining compliance with the legal requirements applicable to UDOT after receiving a written notice that explains the need for such action.

c) Waiver. No part of this Agreement may be waived, whether by a party's failure to insist on strict performance of this Agreement or otherwise, except in a writing signed by an authorized representative of the party waiving. Neither party may assign or delegate this Agreement and actions required by it without the other party's prior written authorization, and any purported assignment or delegation to the contrary is void. This Agreement does not create any agency, joint venture, partnership, or other relationship among the parties, and it is intended only for the parties hereto and does not create any third-party beneficiaries. This Agreement is governed by Utah law without reference to choice or conflict of law provisions. Jurisdiction for any judicial action brought in connection with this Agreement shall be brought in a court in Salt Lake County, Utah, and ALL PARTIES KNOWINGLY AND VOLUNTARILY WAIVE THEIR RIGHTS TO A JURY TRIAL. Time is of the essence. This Agreement (or, if any part hereof is invalidated by law, this Agreement's remaining provisions) shall be construed to enforce its terms to the fullest extent allowed under applicable law to give effect to the intent of the parties. This Agreement will not be construed under an assumption to interpret it against a drafter. Before taking any legal action in connection with this Agreement, each party agrees to first advise the other of a dispute and to meet to discuss it in good faith in an effort to resolve it. All remedies in this Agreement are cumulative and nonexclusive, they survive a termination of this Agreement, and they do not limit any other remedies available to the parties. Nothing in this Agreement shall be construed to limit UDOT's governmental powers and authority. This Agreement may only be amended in a written document that is signed by an authorized representative of each party. This is the entire agreement of the parties with respect to the subject matter hereof and it shall supersede all prior negotiations, understandings, and agreements with respect to such subject matter. Each party warrants that all of its representatives who are necessary to make this Agreement fully binding against the party (and its successors and assigns, if any) have signed below with the party's authorization, and that this Agreement's terms do not violate laws, contracts, or commitments that apply to the party. This Agreement may be signed in counterparts and signed electronically.

IN WITNESS WHEREOF, the Parties have entered into this Agreement effective as of the date first set forth herein.

RECOMMENDED FOR APPROVAL

By:_____
Title: Region Project Manager, **********

Date:_____

UTAH DEPARTMENT OF TRANSPORTATION

By: _____
Title: UDOT Region Director, **********

Date:_____

UTAH COMPTROLLER'S OFFICE

By:_____
Title: Contract Administrator, **********

Date: _____

**********City/County**********

By:_____

Title: _____

Date: _____

Approved as to form: _____

Attest (Recorder):

_____

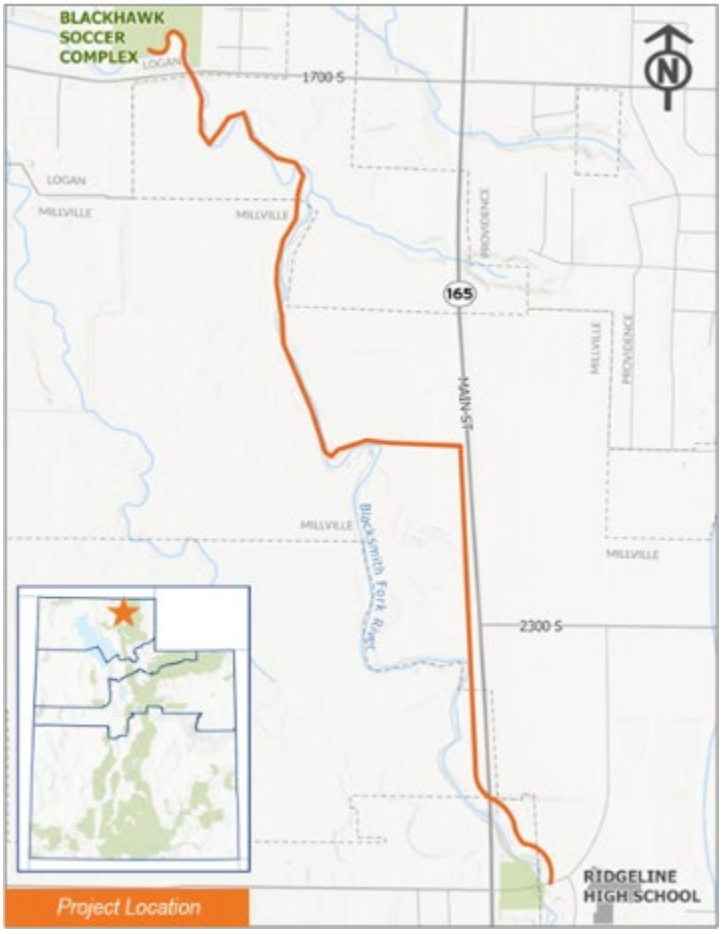
State of Utah
Department of Transportation

Active Transportation Cooperative Agreement **(Exhibit A)**	Local Agency(ies): Logan City, Nibley City, Providence City	Date Executed:
PIN: 21894 CID: 74836 Project #: S-TR01(1)		

Project Location.

The trail is located adjacent to Blacksmith Fork River from 1700 South to 2600 South in Cache County.

Project Map.



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State of Utah
Department of Transportation

Active Transportation Cooperative Agreement **(Exhibit B)**	Local Agency(ies): Logan City, Nibley City, Providence City	Date Executed:
PIN: 21894 CID: 74836 Project #: S-TR01(1)		

Scope of Work.

This project will construct a shared use path that connects commuters from Ridgeline High School to Blackhawk Soccer Complex in Cache Valley.

The trail will follow the Blacksmith Fork River and will consist of a paved and separated facility that supports different modes of active transportation.

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State of Utah
Department of Transportation

Active Transportation Cooperative Agreement **(Exhibit C)**	Local Agency(ies): Logan City, Nibley City, Providence City	Date Executed:
PIN: 21894 CID: XXXXX Project #: S-TR01(1)		

Extents of Trail Maintenance.

(Use this space to describe the extents of trail maintenance between several LG Agencies in the event that the trail is shared by several jurisdictions. Attach a map, if available, to show these extents graphically.)

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		PERSONNEL				
Task		Personnel	Duration (week/yr)	Frequency	hrs/per	Manhours
Mowing		1	4	1	6	24
Edge/Trim		2	4	1	9	72
Fall Cleanup		3	2	1	7	42
Tree Trimming		3	1	1	10	30
Restrooms and garabage maintenance						0
Restroom Cleaners						
Maintain waterway						0
Pickleball Court						0
Playground Maintenance						0
Playground Inspection						0
Playground Inspection						0
Sprinklers						0
Planter Maintenance						0
Plaza Maintenance						0
Plaza Maintenance						0
Snow Removal Trails		1	15	1	1.5	22.5
Bridge snow removal		1	15	1	1	15
Chemicals Landscaping						0
Chemicals Herbicide		1	2	1	4	8
Gas utility						0
Electric Utility						0
Water Utility (irrigation)						0

Asphalt Trail Maint
Concrete Trail Maint

FULL TRAIL

cost/hr	Personnel cost
$21.00	$504.00
$21.00	$1,512.00
$21.00	$882.00
$21.00	$630.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$58.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$472.50
$21.00	$315.00
$21.00	$0.00
$21.00	$168.00
	$0.00
	$0.00
	$0.00

$4,483.50
$ 500.00
$ 1,000.00

$5,983.50

EQUIPMENT/MATERIALS/UT			
Equipment	# of pieces	Duration (week/yr)	Frequency
Mower (tractor)	1	4	1
Trimmer	2	4	1
Pick up	1	1	1
Chain Saw	1	1	1
Cleaner (gals)			
UTV	1	2	1
Blower			
UTV	1	4	1
Blower	1	2	1
Pressure Washer			
UTV			
SnowBlower	1	15	1
Fertilizers (lbs)			
Herbicide (gals)	2.5	2	1
Gas Bill (avg/month)			
Electric Bill (avg/month)			
Water Bill (avg/month)			
Water Bill (avg/month)			

ILITIES			
Hours	cost/hr	Equipment Cost	Total Cost
6	$64.00	$1,536.00	$2,040.00
9	$7.00	$504.00	$2,016.00
		$0.00	$882.00
10	$68.00	$680.00	$1,310.00
10	$7.00	$70.00	$70.00
	$22.00	$0.00	$0.00
4	$50.00	$400.00	$400.00
	$7.00	$0.00	$0.00
		$0.00	$0.00
		$0.00	$0.00
		$0.00	$0.00
9	$50.00	$1,800.00	$1,800.00
		$0.00	$0.00
7	$7.00	$98.00	$98.00
	$9.00	$0.00	$0.00
	$60.00	$0.00	$472.50
1	$40.00	$600.00	$915.00
	$1.25	$0.00	$0.00
1	$60.00	$300.00	$468.00
	$197.57	$0.00	$0.00
	$101.03	$0.00	$0.00
	$350.00	$0.00	$0.00
	$100.00	$0.00	$10,471.50
		$5,988.00	

Total	$11,971.50

		PERSONNEL				
Task		Personnel	Duration (week/yr)	Frequency	hrs/per	Manhours
Mowing		1	4	1	1	4
Edge/Trim		2	4	1	2	16
Fall Cleanup		3	2	1	2	12
Tree Trimming		3	1	1	2	6
Restrooms and garabage maintenance						0
Restroom Cleaners						
Maintain waterway						0
Pickleball Court						0
Playground Maintenance						0
Playground Inspection						0
Playground Inspection						0
Sprinklers						0
Planter Maintenance						0
Plaza Maintenance						0
Plaza Maintenance						0
Snow Removal Trails		1	15	1	1	15
Bridge snow removal						0
Chemicals Landscaping						0
Chemicals Herbicide		1	2	1	1	2
Gas utility						0
Electric Utility						0
Water Utility (irrigation)						0

Asphalt Trail Maint
Concrete Trail Maint

NIBLEY TRAIL ONLY

cost/hr	Personnel cost
$21.00	$84.00
$21.00	$336.00
$21.00	$252.00
$21.00	$126.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$58.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$315.00
$21.00	$0.00
$21.00	$0.00
$21.00	$42.00
	$0.00
	$0.00
	$0.00

	$1,155.00
$	500.00
$	1,000.00
	$2,655.00

EQUIPMENT/MATERIALS/UT			
Equipment	# of pieces	Duration (week/yr)	Frequency
Mower (tractor)	1	4	1
Trimmer	2	4	1
Pick up	1	1	1
Chain Saw	1	1	1
Cleaner (gals)			
UTV	1	2	1
Blower			
UTV	1	4	1
Blower	1	2	1
Pressure Washer			
UTV			
SnowBlower			
Fertilizers (lbs)			
Herbicide (gals)	0.5	2	1
Gas Bill (avg/month)			
Electric Bill (avg/month)			
Water Bill (avg/month)			
Water Bill (avg/month)			

ILITIES			
Hours	cost/hr	Equipment Cost	Total Cost
1	$64.00	$256.00	$340.00
2	$7.00	$112.00	$448.00
		$0.00	$252.00
2	$68.00	$136.00	$262.00
2	$7.00	$14.00	$14.00
	$22.00	$0.00	$0.00
2	$50.00	$200.00	$200.00
	$7.00	$0.00	$0.00
		$0.00	$0.00
		$0.00	$0.00
		$0.00	$0.00
2	$50.00	$400.00	$400.00
		$0.00	$0.00
2	$7.00	$28.00	$28.00
	$9.00	$0.00	$0.00
	$60.00	$0.00	$315.00
	$40.00	$0.00	$0.00
	$1.25	$0.00	$0.00
1	$60.00	$60.00	$102.00
	$197.57	$0.00	$0.00
	$101.03	$0.00	$0.00
	$350.00	$0.00	$0.00
	$100.00	$0.00	$2,361.00
		$1,206.00	

Total	$3,861.00

				PERSONNEL		
Task		Personnel	Duration (week/yr)	Frequency	hrs/per	Manhours
Mowing		1	4	1	3	12
Edge/Trim		2	4	1	4	32
Fall Cleanup		3	2	1	3	18
Tree Trimming		3	1	1	3	9
Restrooms and garabage maintenance						0
Restroom Cleaners						
Maintain waterway						0
Pickleball Court						0
Playground Maintenance						0
Playground Inspection						0
Playground Inspection						0
Sprinklers						0
Planter Maintenance						0
Plaza Maintenance						0
Plaza Maintenance						0
Snow Removal Trails		1	15	1	1	15
Bridge snow removal						0
Chemicals Landscaping						0
Chemicals Herbicide		1	2	1	2	4
Gas utility						0
Electric Utility						0
Water Utility (irrigation)						0

Asphalt Trail Maint
Concrete Trail Maint

SR-165 TRAIL ONLY

cost/hr	Personnel cost
$21.00	$252.00
$21.00	$672.00
$21.00	$378.00
$21.00	$189.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$58.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$0.00
$21.00	$315.00
$21.00	$0.00
$21.00	$0.00
$21.00	$84.00
	$0.00
	$0.00
	$0.00

$1,890.00
$ 500.00
$ 1,000.00

$3,390.00

EQUIPMENT/MATERIALS/UT			
Equipment	# of pieces	Duration (week/yr)	Frequency
Mower (tractor)	1	4	1
Trimmer	2	4	1
Pick up	1	1	1
Chain Saw	1	1	1
Cleaner (gals)			
UTV	1	2	1
Blower			
UTV	1	4	1
Blower	1	2	1
Pressure Washer			
UTV			
SnowBlower			
Fertilizers (lbs)			
Herbicide (gals)	1.5	2	1
Gas Bill (avg/month)			
Electric Bill (avg/month)			
Water Bill (avg/month)			
Water Bill (avg/month)			

ILITIES			
Hours	cost/hr	Equipment Cost	Total Cost
3	$64.00	$768.00	$1,020.00
4	$7.00	$224.00	$896.00
		$0.00	$378.00
3	$68.00	$204.00	$393.00
3	$7.00	$21.00	$21.00
	$22.00	$0.00	$0.00
2	$50.00	$200.00	$200.00
	$7.00	$0.00	$0.00
		$0.00	$0.00
		$0.00	$0.00
		$0.00	$0.00
4	$50.00	$800.00	$800.00
		$0.00	$0.00
3	$7.00	$42.00	$42.00
	$9.00	$0.00	$0.00
	$60.00	$0.00	$315.00
	$40.00	$0.00	$0.00
	$1.25	$0.00	$0.00
1	$60.00	$180.00	$264.00
	$197.57	$0.00	$0.00
	$101.03	$0.00	$0.00
	$350.00	$0.00	$0.00
	$100.00	$0.00	$4,329.00
		$2,439.00	

Total	$5,829.00

Agenda Item #8

Description	**Discussion and Consideration:** Resolution 25-24—Authorizing Not More Than $3,800,000 Taxable Water Revenue Bonds, In One or More Series, For Water System Improvements, and Related Improvements; Providing for the Publication of a Notice of Public Hearing and Bonds to Be Issued: Fixing the Maximum Aggregate Principal Amount, Interest Rate, Maturity, and Discount of the Bonds; Providing For the Running of a Contest Period; And Related Matters (First Reading)
Presenter	Tom Dickinson, City Engineer
Recommendation	Approve Resolution 25-24—Authorizing Not More Than $3,800,000 Taxable Water Revenue Bonds, In One or More Series, For Water System Improvements, and Related Improvements; Providing for the Publication of a Notice of Public Hearing and Bonds to Be Issued: Fixing the Maximum Aggregate Principal Amount, Interest Rate, Maturity, and Discount of the Bonds; Providing For the Running of a Contest Period; And Related Matters, and waive the second reading
Reviewed By	City Manager, City Engineer

Background:

Nibley City staff has applied for and been approved for a $3.5M loan with the Utah Division of Drinking Water, with a 20-year term at 2.5% interest. In order to accept the loan, the City must follow a few steps outlined in state code. This resolution is the first step, essentially notifing the public of the intent to accept, to be followed by a public hearing and consideration at the next Council meeting. City Attorney, Eric Johnson will be on hand to discuss the process and answer any questions the Council may have.

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NIBLEY CITY, UTAH

TAXABLE WATER REVENUE BONDS
PARAMETERS RESOLUTION

July 10, 2025

RESOLUTION NO. 25-24

A RESOLUTION AUTHORIZING NOT MORE THAN $3,800,000 TAXABLE WATER REVENUE BONDS, IN ONE OR MORE SERIES, FOR WATER SYSTEM IMPROVEMENTS, AND RELATED IMPROVEMENTS; PROVIDING FOR THE PUBLICATION OF A NOTICE OF PUBLIC HEARING AND BONDS TO BE ISSUED; FIXING THE MAXIMUM AGGREGATE PRINCIPAL AMOUNT, INTEREST RATE, MATURITY, AND DISCOUNT OF THE BONDS; PROVIDING FOR THE RUNNING OF A CONTEST PERIOD; AND RELATED MATTERS.

WHEREAS, pursuant to the provisions of the Utah Local Government Bonding Act, Title 11, Chapter 14, Utah Code Annotated 1953, as amended (the "Act"), the City Council (the "Council") of Nibley City, Utah (the "Issuer") has authority to issue its Taxable Water Revenue Bonds (the "Bonds") in a principal amount not to exceed $3,800,000, in one or more series, for the purposes set forth above; and

WHEREAS, the Act provides for the publication of a Notice of Public Hearing and Bonds to be Issued, and the Issuer desires to publish such a notice at this time in compliance with the Act with respect to the bonds to be issued by the Issuer pursuant to this Resolution and the Final Bond Resolution (as defined below);

WHEREAS, Nibley City, Cache County, Utah (the "Issuer"), desires to finance, in part, the acquisition and construction of water system improvements, and related improvements (the "Project"); and

NOW, THEREFORE, it is hereby resolved by the City Council of Nibley City, Cache County, Utah, as follows:

Section 1. The Council of the Issuer hereby finds and determines that it is in the best interests of the Issuer and the residents for the Issuer to issue not more than $3,800,000 aggregate principal amount of its Taxable Water Revenue Bonds, in one or more series, which shall be designated as "Nibley City, Utah Taxable Water Revenue Bonds" (herein, the "Bonds"), bearing a hardship grant assessment in lieu of interest at a rate not to exceed 2.5% per annum, to mature in not more than twenty-five (25) years from their date or dates, and to be sold at a price not less than ninety-nine percent (99%) of the total principal amount thereof, the Bonds to be issued for the purpose of financing, in part, the acquisition and construction of water system improvements, including a culinary water well, and related improvements, all pursuant to this Resolution and a resolution to be adopted by the Council authorizing and confirming the issuance and sale of the Bonds

(herein referred to as the "Final Bond Resolution" and substantially in the form attached hereto as Exhibit A), and the Issuer hereby declares its intention to issue the Bonds according to the provisions of this Resolution and the Final Bond Resolution, when adopted.

Section 2. The Issuer hereby calls a public hearing on July 31, 2025, at 6:30 p.m., or as soon thereafter as feasible, at the offices of the Issuer, to invite comment on the proposed Bonds and the economic impact of the Project on the private sector.

Section 3. The Issuer hereby authorizes and approves the issuance and sale of the Bonds pursuant to the provisions of this Resolution and the Final Bond Resolution, to be adopted by the Council at a later date, with such changes thereto as shall be approved by the Council upon the adoption of the Final Bond Resolution, provided that the principal amount, the interest rate or rates (hardship grant assessment in lieu of interest), maturity and discount shall not exceed the maximums as set forth in Section 1 hereof.

Section 4. In accordance with the provisions of the Act, the City Recorder is hereby authorized and directed to cause a "Notice of Public Hearing and Bonds to be Issued," substantially in the form attached hereto as Exhibit B (the "Notice") to be (1) posted on the City website, (2) posted on the Utah Public Notice Website and (3) posted at the City office all at least 14 days prior to the Public Hearing, and (4) to cause a copy of this Resolution (together with all exhibits hereto) to be kept on file in the office of the Issuer's City Recorder in Nibley, Utah, for public examination during regular business hours of the Issuer, i.e. between 9:00 a.m. and 5:00 p.m. Monday through Friday for at least thirty (30) days from and after the date of publication of the Notice.

Section 5. The Council hereby directs the City Recorder to complete and execute the Record of Proceedings attached hereto as Exhibit C-1 to officially record the proceedings at which this Parameters Resolution was considered for adoption.

Section 6. All parts of this Resolution are severable, and if any section, clause or provision of this Resolution shall, for any reason, be held invalid or unenforceable, the invalidity or unenforceability of any such section, clause or provision shall not affect the remaining sections, clauses or provisions of this Resolution.

Section 7. All resolutions or parts thereof in conflict herewith are, to the extent of such conflict, hereby repealed and this Resolution shall be in full force and effect immediately upon its approval and adoption.

APPROVED AND ADOPTED this July 10, 2025.

_____
Mayor

ATTEST:

_____
City Recorder

(S E A L)

EXHIBIT A

FINAL BOND RESOLUTION

(See Transcript Document No. __)

EXHIBIT B

NOTICE OF PUBLIC HEARING AND BONDS TO BE ISSUED

NOTICE IS HEREBY GIVEN pursuant to the provisions of the Utah Local Government Bonding Act, Title 11, Chapter 14, Utah Code Annotated 1953, as amended, that on July 10, 2025, the City Council (the "Council") of Nibley City, Cache County, Utah (the "Issuer") adopted a resolution (the "Resolution") in which it authorized the issuance and sale of the Issuer's Taxable Water Revenue Bonds, in one or more series (the "Bonds"), in an aggregate principal amount not to exceed $3,800,000, bearing a hardship grant assessment in lieu of interest at the maximum rate of 2.5% per annum, to mature in not more than twenty-five (25) years from their date or dates, and to be sold at a price not less than 99% of the total principal amount thereof, plus accrued interest, if any. The estimated total cost to the Issuer for the proposed Bonds, if the Bonds are held until the maximum maturity, based on the maximum hardship grant assessment in lieu of interest rate above, if any, is $5,114,231. However, the Issuer has obtained a funding approval for the Project from the State of Utah acting through its Department of Environmental Quality, Drinking Water Board (the "DWB"), for a loan in the amount of $3,500,000, bearing a hardship grant assessment in lieu of interest at the rate of 2.5% per annum, to mature in 20 years, in which case the estimated total cost to the Issuer for the proposed bonds will be $4,451,185. Presently, the Issuer has no bonds secured by a pledge of water revenues.

NOTICE IS FURTHER GIVEN that the Issuer called a public hearing for the purpose of inviting public comment on the proposed issuance of the Bonds and the economic impact that the improvements proposed to be financed with the Bonds will have on the private sector. The public hearing will be held on July 31, 2025, at 6:30 p.m., or as soon thereafter as feasible, at Nibley City offices located at 455 W. 3200 S., Nibley, Utah 84321. As Taxable Water Revenue Bonds, no property taxes will be pledged for repayment of the Bonds.

The Bonds will be issued pursuant to the Resolution and a Final Bond Resolution (the "Final Bond Resolution") of the Council of the Issuer, authorizing and confirming the sale of the Bonds for the purposes to (i) finance the acquisition and construction of water system improvements, including a culinary water well, and related improvements, and (ii) pay the costs of issuing the Bonds.

A draft of the Final Bond Resolution in substantially final form was before the Council and was part of the Resolution at the time of the adoption of the Resolution by the Council (collectively, the "Bond Resolutions"). The Final Bond Resolution is to be adopted by the Council in such form and with such changes thereto as shall be approved by the Council upon the adoption thereof; provided that the principal amount, the interest rate or rates, maturity, and discount of the Bonds will not exceed the maximums set forth above.

Copies of the Bond Resolutions are on file in the office of the City Recorder of the Issuer in the Issuer's offices in Nibley, Utah, where they may be examined during regular business hours, i.e., between from 9:00 a.m. to 5:00 p.m. Monday through Friday, for a period of at least thirty (30) days from and after the date of publication of this notice.

NOTICE IS FURTHER GIVEN that a period of thirty (30) days from and after the date of the publication of this notice, any person in interest shall have the right to contest the legality of the Bond Resolutions or the Bonds, or any provision made for the security and payment of the Bonds by filing a verified written complaint in the district court of their county of residence, and that after such 30-day period, no one shall have any cause of action to contest the regularity, formality or legality thereof for any reason.

July 10, 2025

Nibley City

/s/ Cheryl Bodily
City Recorder

EXHIBIT C-1

RECORD OF PROCEEDINGS

The City Council (the "Council") of Nibley City, Cache County, Utah (the "Issuer"), met in public session at the regular meeting place of the Council in Nibley, Utah, on July 10, 2025, at the hour of 6:30 p.m., or as soon thereafter as feasible, with the following members of the Council being present:

Larry Jacobsen	Mayor
Erin Mann	Councilmember
Garrett Mansell	Councilmember
Kay Sweeten	Councilmember
Nathan Laursen	Councilmember
Norm Larsen	Councilmember

Also present:

Cheryl Bodily	City Recorder
Justin Maughan	City Manager

Absent:

which constituted all members thereof.

After the meeting had been duly called to order and after other matters not pertinent to this resolution were discussed, the foregoing resolution (the "Resolution") was introduced in written form and fully discussed.

A motion to adopt the Resolution was then duly made by Councilmember _____ and seconded by Councilmember _____, and the Resolution was put to a vote and carried, the vote being as follows:

Those voting YEA:

Those voting NAY:

Those Abstaining:

The City Recorder presented to the Council a Certificate of Compliance with Open Meeting Law with respect to this July 10, 2025 meeting, a copy of which is attached hereto.

Upon the conclusion of all the business on the Agenda and motion duly made and carried, the Meeting was adjourned.

EXHIBIT C-2

CERTIFICATE OF CITY RECORDER

I, Cheryl Bodily, the duly appointed and qualified City Recorder of Nibley City, Cache County, Utah (the "Issuer"), do hereby certify that the attached Resolution is a true, accurate and complete copy thereof as adopted by the City Council of the Issuer at a public meeting duly held on July 10, 2025 (the "Meeting"). The Meeting was called and noticed as required by law as is evidenced by the following Certificate of Compliance with Open Meeting Law. The persons present and the result of the vote taken at the Meeting are all as shown above. The Resolution, with all exhibits attached, was deposited in my office on July 10, 2025 and is officially of record in my possession.

IN WITNESS WHEREOF, I have hereunto subscribed my signature and impressed hereon the official seal of the Issuer, this July 10, 2025.

_____

City Recorder

(S E A L)

EXHIBIT C-3

CERTIFICATE OF COMPLIANCE WITH OPEN MEETING LAW

I, Cheryl Bodily, the undersigned City Recorder of Nibley City, Cache County, Utah (the "Issuer"), do hereby certify, according to the records of the Issuer in my official possession, and upon my own knowledge and belief, that in accordance with the requirements of Section 52-4-202, Utah Code Annotated 1953, as amended, I gave not less than twenty-four (24) hours public notice of the agenda, date, time, and place of the July 10, 2025, public meeting held by the Issuer as follows:

(a) By causing a notice, in the form attached hereto (the "Meeting Notice"), to be posted at the principal office of the Issuer at least twenty-four (24) hours prior to the convening of the meeting, the Meeting Notice having continuously remained so posted and available for public inspection until the completion of the Meeting; and

(b) By causing a copy of the Meeting Notice to be posted on the City website at least twenty-four (24) hours prior to the convening of the Meeting;

(c) By causing a copy of the Meeting Notice to be posted on the Utah Public Notice Website at least twenty-four (24) hours prior to the convening of the Meeting; and

Section 8. In addition, the Notice of 2025 Annual Meeting Schedule for the Issuer was given specifying the date, time and place of the regular meetings of the City Council of the Issuer to be held during the year by causing notice to be (1) posted on _____, 202__, at the principal office of the Issuer and by causing a copy of said Notice to be (2) posted on the City's website on _____, 202__, and by causing a copy of said Notice to be (3) posted on the Utah Public Notice Website on _____, 202__.

IN WITNESS WHEREOF, I have hereunto subscribed my signature and impressed hereon the official seal of the Issuer, this July 10, 2025.

_____
City Recorder

(S E A L)

(Attach Meeting Notice (Agenda) and proof of posting thereof on (1) the Utah Public Notice Website, (2) City Website, and (3) at City Hall). Attach annual meeting notice and proof of posting on 1) Utah Public Notice Website, 2) City Website, and 3) at City Hall).

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Agenda Item #9

Description	**Discussion and Consideration:** Resolution 25-25—Recording a Protective Easement for UTE ladies'-tresses in the Nibley City Center Park (First Reading)
Presenter	Tom Dickinson, City Engineer
Recommendation	Move to approve Resolution 25-25—Recording a Protective Easement for UTE ladies'-tresses in the Nibley City Center Park, and waive the second reading
Reviewed By	City Manager, City Attorney, Mayor, Council Member Larson

Background:

The Nibley City Center Park, previously known as Ridgeline City Park, located at approximately 2695 South Ropaleto Dr. has been in planning and design stages for a couple of years. There are several funding sources being used to design and construct the park including a $1.2M federal matching grant from the Land and Water Conservation Fund (LWCF).

Federal grant monies require compliance with the National Environmental Protection Act (NEPA). Upon finalizing the design, staff applied for NEPA clearances to satisfy requirements of the LWCF grant and were made aware of issues with the original wetland study and the presence of an endangered orchid found on the project site. Since then, staff has been coordinating with the Army Corps of Engineers (ACOE), the United States Fish and Wildlife Service (USFWS), and LWCF to complete the NEPA process. Additional study of the area found inaccurate wetland boundaries and an unexpected increase in possible ULT habitat area. The Park design was modified to avoid new wetland boundaries and suspected ULT habitat.

ULT may lay dormant for up to 10 years. In efforts to identify and protect suspected ULT populations on a site, it is customary to study project sites for up to 3 years to allow additional survey of ULT populations in the area that will provide a better indication of expanded ULT occurrences and to ensure they are not disturbed. First year ULT surveys at the Nibley Park found 40 ULT occurrences at the site. Typically, two additional surveys are required prior to receiving NEPA clearance, but USFWS has agreed to an to allow development of the Nibley Park outside of any suspected ULT habitat while additional surveys are performed over 2 more blooming seasons into 2026. As a concession to having the full 3 years of studies complete prior to permitting ground disturbance, the USFWS has requested a mechanism to protect ULT on the Park property.

Satisfying USFWS on protection of ULT is the final step necessary to reapply with the Army Corps of Engineers for NEPA compliance. Staff prepared a Deed of Protective Easement for ULT on the Park site. The objective of the Easement is to preserve and protect Ute Ladies'-tresses populations in the park boundaries using proven management practices effective at preserving the species. This is to be achieved through a long-term conservation measure and a Habitat Management Plan that provides guidelines for mowing and grazing practices, invasive/noxious species management, additional ULT surveys, and additional survey activities thereafter.

Highlights of the Protective Easement:

- 20-year term- subject to renewal/extension by mutual agreement by Nibley City and USFWS;
- Habitat Management Plan
    - Monitor and control invasive and noxious vegetation;
    - Mowing or grazing each year;
    - Adaptive Management Considerations that respond to changing conditions of ULT and its habitat
- Cannot subdivide property;
- Develop Park improvements as shown in the Park plan;
- Park construction activities to occur between September 15 and July 1;
- Limit public access to Developed areas of the Park;
- Dogs allowed on Developed areas of the Park while on leash;
- Additional development may be considered and requires Environmental Site Assessment in coordination with USFWS;
- No additional development beyond the Park plan will be considered for at least 3-years;
- Additional 2-years of formal ULT surveys (through 2026 growing season)
- Additional Bi-annual (every 2 years) monitoring/reporting of ULT and habitat (volunteer counts);

Cost

Staff prepared cost estimates to comply with the terms and conditions of the Easement. Total maintenance cost over the 20-year period is estimated to be $85,632. BioWest has proposed to perform formal ULT surveys for $12,411 over the next 2 years to comply with conditions of the Habitat Management Plan and Easement. Deducting the cost of formal surveys from maintenance costs for the park leaves $73,220 or $3,661 per year in years 2027 through the remainder of the 20-year Easement.

Timeline

Terms of the LWCF grant expire October 2026 leaving this fall/spring as the last opportunity to build the park and maintain the grant.

To protect ULT populations and habitat, construction activities must occur outside the blooming period and may occur between Sept. 15 and July 1. Construction may take up

to one year to develop phases 1 and 2 of the Park. The ACOE permitting process may take up to 90 days.
Having NEPA clearance and ACOE permits are essential and must be secured by this fall at the latest.

Recommendation:

Staff recommends recording a Deed of Protective Easement on the Nibley City Center Park property, so ACOE permits may be secured to start development of the Nibley City Center Park.

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RESOLUTION 25-25

RECORDING A PROTECTIVE EASEMENT FOR UTE LADIES'-TRESSES IN THE NIBLEY CITY CENTER PARK

WHEREAS, Nibley City has been in the process of constructing Nibley City Center Park; and

WHEREAS, Federal funding was obtained in the form of a Grant from the Land and Water Conservation Fund, and therefore NEPA requirements took effect on the project; and

WHEREAS, During the environmental study phase of the project, an endangered orchid called Ute Ladies' - Tresses was discovered on the property; and

WHEREAS, Nibley City desires to comply with Federal Requirements, and protect the orchid.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF NIBLEY CITY, STATE OF UTAH, AS FOLLOWS:

The attached Conservation Easement with the US Fish and Wildlife Services be approved and agreed to.

Dated this 10 day of July, 2025.

_____
Larry Jacobsen, Mayor

ATTEST

_____
Cheryl Bodily, City Recorder

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Figure 3
ULT Habitat Map

- Project Area
- ULT Suitable Habitat
- ULT Occupied Habitat
- ULT Occurrences
- Action Area
- Ditch

Total Project Area: 16.84 acres
Total Suitable Habitat: 7.11 acres
Total ULT Occupied Habitat: 0.36 acres
Total ULT Occurrences: 40
Survey Date: 8/2/2024 and 8/6/2024

Map Date: 4/25/2025 by M. Horihan
Aerial Imagery: Maxar 05/2023

N

0 200 400
Feet

1 inch = 200 feet

Name: NAD 1983 StatePlane Utah North FIPS 4301 Feet
Datum: North American 1983
Projection: Lambert Conformal Conic

CIVIL SOLUTIONS GROUP

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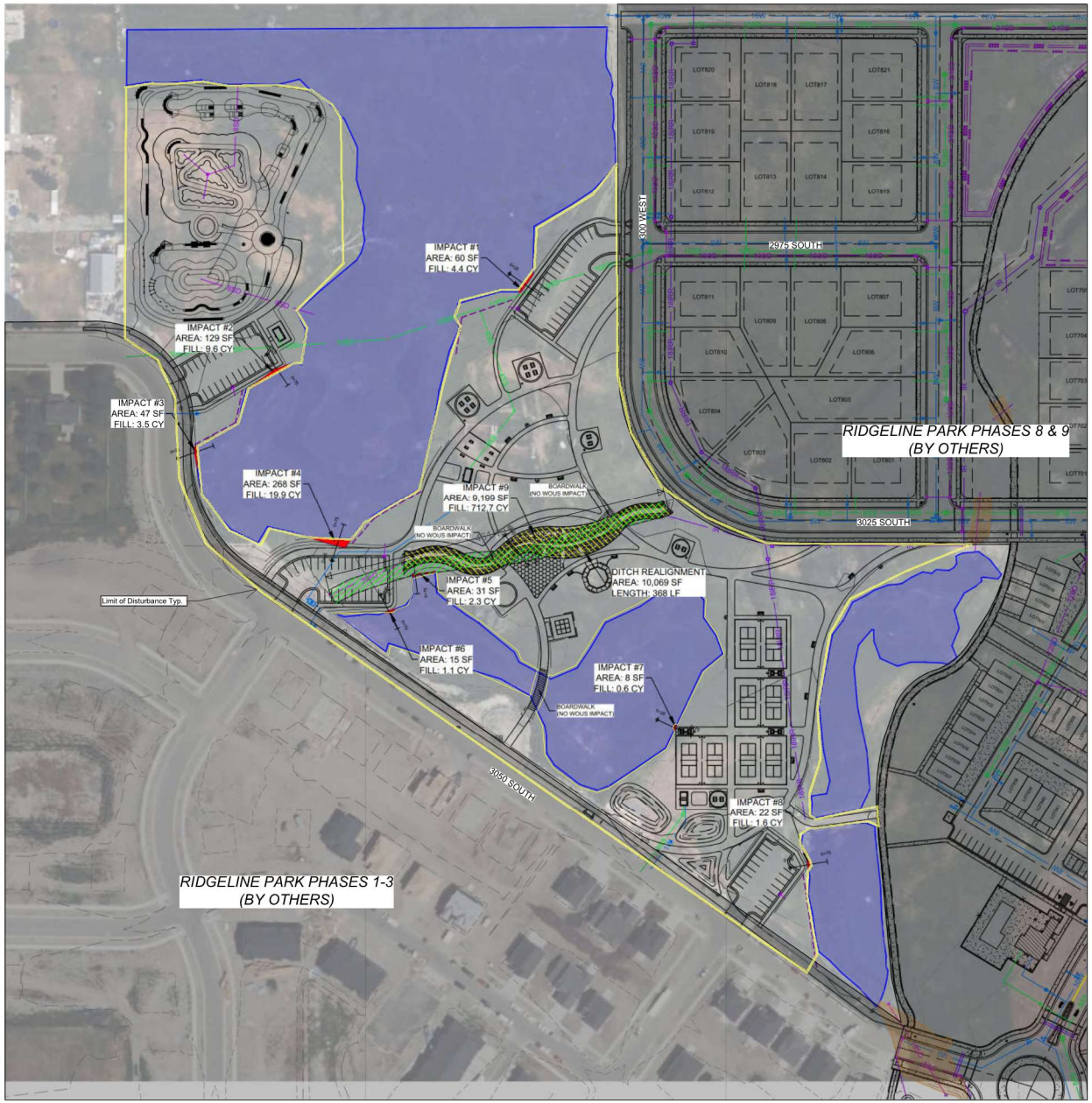

Impact Name	Impact Type	SF Impacts	CY Impacts	LF Impacts
Impact 1	Wetland	60	4.4	N/A
Impact 2	Wetland	129	9.6	N/A
Impact 3	Wetland	47	3.5	N/A
Impact 4	Wetland	268	19.9	N/A
Impact 5	Wetland	31	2.3	N/A
Impact 6	Wetland	15	1.1	N/A
Impact 7	Wetland	8	0.6	N/A
Impact 8	Wetland	22	1.6	N/A
Wetland Totals		580	43	N/A
Impact 9	Ditch	9199	712.7	461
Ditch Totals		9199	712.7	461

LEGEND

- WETLAND
- PERMANENT WETLAND IMPACT
- PERMANENT DITCH IMPACT
- DITCH REALIGNMENT

N

0 60 120 Feet

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

RIDGELINE CITY PARK
WETLAND IMPACTS
401 WEST ROPELATO DRIVE
NIBLEY, UT 84321

MARK	DATE	DESCRIPTION

PROJECT #: 22-270
DRAWN BY: L. WESTON
PROJECT MANAGER: M. TAYLOR
ISSUED: 3/6/2025

WOUS IMPACTS MAP

1 OF 2

P:\2022\22-270 Ridgeline City Park\Environmental\Wetland Delineation\22-270 Wetland Impacts 03.04.25

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RIDGELINE CITY PARK

HABITAT MANAGEMENT PLAN FOR UTE LADIES'-TRESSES

Prepared on Behalf of:
Nibley City
455 West 3200 South
Nibley, Utah 84321

Prepared By:
Civil Solutions Group, Inc.
498 West 100 South
Providence, Utah 84332
ckline@csg.work

June 2025

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2.0 Ute Ladies'-tresses Background Information 1
3.0 Pre-Construction Baseline Conditions 2
4.0 Management Objectives 3
  4.1 Long-Term Conservation Measure 3
  4.2 Additional Documentation During Blooming Period 3
  4.3 Invasive and Noxious Species Management 3
  4.4 Mowing and Grazing 4
5.0 Adaptive Management Considerations 4

List of Appendices

Appendix A- Ridgeline City Park Map
Appendix B- Ute Ladies'-tresses Locations
Appendix C- 2025 Cache County Prioritized Noxious Weeds List

1.0 Introduction

On behalf of Nibley City, Civil Solutions Group (CSG) has prepared a draft habitat management plan for the Ridgeline City Park Project (Park or Project) located near the intersection of 2695 South and Ropelato Drive in Nibley, Cache County, Utah. The Park is approximately 16.8 acres in size and consists of numerous recreational facilities (bike park, pickleball courts, picnic facilities, walking trails, etc.) and appurtenant facilities such utilities, restrooms, and parking lots.

The purpose of this management plan is to identify and implement best management practices (BMPs) that will protect and preserve Ute Ladies'-Tresses (*Spiranthes diluvialis* or ULT) habitat within the Park after construction. The ULT is a threatened orchid currently protected under the Federal Endangered Species Act (ESA).

BMPs during construction are described in a biological assessment (BA) provided to the Army Corps and U.S. Fish and Wildlife Service during the Clean Water Act Section 404 permit review. As of June 2025, a draft biological assessment (draft BA) is currently under review for the proposed Park. Section 404 permitting is also currently under review as part of the Park (SPK-2021-00107).

Both short-term and long-term post-construction management and maintenance considerations are included in the sections below.

2.0 Ute Ladies'-tresses Background Information

Ute ladies'-tresses is a perennial orchid, 8 to 20 inches tall, with white or ivory flowers clustered into a spike arrangement at the top of the stem. Ute ladies'-tresses typically blooms from late July through August. Ute ladies'-tresses habitat is generally described as old stream channels, alluvial terraces, sub-irrigated meadows, and other wetland habitat with alluvial deposits ranging from cobbles to fine textured sands and sandy loams. Its habitat is often associated with valley bottoms along medium to large streams and rivers of moderate gradient below 7,000 feet in elevation. Ute ladies'-tresses can also be found in wet meadows and irrigated pastures isolated from streams and rivers, but these areas generally require a reliable water source.

Associative plant communities can include a moderate cover of shrubs and trees such as black cottonwood (*Populus trichocarpa*), black hawthorn (*Crataegus douglasii*), narrowleaf cottonwood (*Populus angustifolia*), thin leaf alder (*Alnus tenuifolia*), and various willow species (*Salix sp.*). Associative plant communities in the herbacesous layer are generally described as moderate cover of various species such as creeping bentgrass (*Agrostis stolonifera*), mat muhly (*Muhlenbergia richardsonis*), Nebraska sedge, swordleaf rush (*Juncus ensifolius*), Baltic rush, white clover (*Trifolium repens*), field sowthistle (*Sonchus arvensis*), and western aster (*Aster ascendens*). Unsuitable habitat is generally characterized by monocultures of emergent species such as cattail (*Typha sp.*) and bulrush (*Schoenoplectus sp.*) or dense strands of rhizomatous species that would out compete the Ute ladies'-tresses. Rhizomatous species such as American mannagrass (*Glyceria grandis*), beaked sedge (*Carex utriculata*), common reed (*Phragmites australis*), common teasel (*Dipsacus fullonum*), Nebraska sedge (*Carex nebrascensis*), and reed canarygrass (*Phalaris arundinacea*) can outcompete Ute ladies'-tresses. Dry sites without proper soil

moisture with dense cover of species such as creeping bentgrass (*Agrostis palustris*), and Kentucky bluegrass (*Poa pratensis*) are also considered unsuitable habitat.

Listed as threatened under the Endangered Species Act in 1992, the ULT has now been recommended for delisting. A proposed rule for delisting was published in December 2024. No official delisting has occurred as of the time of this assessment. A draft post-delisting monitoring plan was published in January 2025.

3.0 Pre-Construction Baseline Conditions

The Park is located in a relatively flat portion of Cache Valley between the valley bottom and relict lakeshores of Ancient Lake Bonneville. Land surrounding the Project Area was historically used as irrigated/ sub-irrigated pasture land and farm fields, but is becoming increasingly more developed with residential subdivisions, roadways, and supporting infrastructure associated with residential development. The Park is currently surrounded to the west, south, and east by residential subdivisions, while the northern adjoining property, similar to the Project Area, continues to be used as sub-irrigated pastureland (Appendix A).

As of June 2025, the pre-construction condition of the Park consists of former grazing pasture, and while relatively flat, does have some distinct changes in elevation between wetlands and uplands. Wetlands on-site are located within distinct low-lying areas and have a naturally high groundwater/ surface water during the growing season. Soils are generally loamy at the surface and transition into clays as depth increases. Similar to the greater Nibley area, gravel veins conveying groundwater can often be observed one to four feet below the ground.

In terms of plant communities, uplands are largely dominated species such as Canada thistle (*Cirsium arvense*), common kochia (*Bassia scoparia*), creeping wildrye (*Elymus repens*), Kentucky bluegrass (*Poa pratensis*), meadow fescue (*Schedonorus pratensis*), and rough cockleburr (*Xanthium strumarium*). Thistles, kochia, and cocklebur are becoming especially common throughout the uplands over the past five years or so.

Wetlands within the Project Area can be best described as relatively high-quality emergent marsh and sub-irrigated wet meadow that differ based on their microtopography. Lower lying areas resembling irrigation ditches, naturalized/abandoned ditches, or old oxbow features are generally more of an emergent marsh type community largely dominated by cattail (*Typha sp.*) and hardstem bulrush (*Schoenoplectus acutus*). Surface water is commonly observed in these more emergent areas during the growing season. The somewhat higher elevation wetlands resembling more of a wet meadow plant community, and the habitat where ULT have been identified, are largely dominated by relatively thick communities of common spikerush (*Eleocharis palustris*), Kentucky blue grass (*Poa pratensis*), strawberry clover (*Trifolium fragiferum*), and willow herb (*Ebilobium ciliatum*).

A survey for Ute-Ladies' Tresses was completed during the blooming season in August, 2024 by BIO-West. Forty ULT individuals were identified during that survey in the wet meadow plant community. As outlined below, two more consecutive years ULT surveys (2025 and 2026) shall occur during the blooming season to better understand the population of ULT within the Park property. Locations in

latitude longitude format are included in Appendix B. These locations are based off of the August, 2024 survey.

4.0 Management Objectives

The primary goal of the management plan is to preserve and protect ULT populations within the Park boundaries using proven management practices effective at preserving the species. This shall be achieved through a long-term conservation measure, mowing and grazing practices, invasive/ noxious species management, two additional years of blooming season surveys, and additional survey activities thereafter.

4.1 Long-Term Conservation Measure

ULT habitat shall be protected by a minimum 20-year conservation easement that shall be held and funded by Nibley City. Key points of the easement include:

- No further encroachment into ULT habitat for a minimum of 3 years
- Further encroachment may only occur after consultation with USFWS and other applicable agencies
- Formal ULT surveys shall continue through 2025 and 2026
- Informal monitoring for ULT shall occur every 2 years after 2026, with population number shared with USFWS
- Public access shall largely be kept within built portions of the park, with exceptions to public outreach events pertaining to wetlands and/ or ULT.

4.2 Additional Documentation During Blooming Season

As part of the pending agreement with USFWS. Nibley City shall retain a certified ULT surveyor to conduct a year 2 (summer 2025) and year 3 (summer 2026) survey during the plant's blooming period. This information shall be transmitted to USFWS after each year of survey.

Furthermore, additional survey activities shall occur every two years within the Park for the duration of long-term conservation measure described in Section 4.1. While not an official survey like year 1 through 3, ULT individuals shall be identified during the blooming season, with locations and number of individuals documented and sent to the USFWS. This continued survey will be used to inform any needs for adaptive management. It should be noted that ULT flowering populations can vary dramatically from year to year.

4.3 Invasive and Noxious Species Management

Invasive and noxious species should be monitored seasonally by Nibley City/ Cache County maintenance staff who are trained to identify noxious weed species. The 2025 Cache County Noxious Plant Species List is attached in Appendix C. Hand pulling, mowing, or other manual methods of plant removal are always preferred. If hand pulling of weeds is not feasible, spot treatment of herbicide may be appropriate, with careful consideration to avoid impacting ULT . The following considerations apply when using herbicides.

- A Pesticide Use Permit (PUP) will be approved through authorizing federal or State agency,
- No aerial or broadcast herbicide treatments will be applied for vegetation management within 2,500 feet of suitable or occupied Ute ladies'-tresses habitat.
- For noxious weed control within 2,500 feet of suitable or occupied Ute ladies'-tresses habitat, manual spot treatments (i.e. backpack sprayers) shall be used.
- All those involved in the herbicide application shall be accompanied by a qualified botanist/ecologist familiar with Ute ladies'-tresses to help herbicide applicators identify Ute ladies'-tresses and avoid impacts on individual plants.
- Treatments would not be done when wind speeds exceed 6 miles per hour.
- Drift reducing agents shall be used when practical.
- A reduced application rate would be used.
- Pump pressure would be reduced, per label instructions.
- Droplet size would be increased to the largest size possible while still effectively covering the target vegetation. This could be accomplished using larger nozzles or reduced pressure.
- Herbicides shall be stored in spill proof containers away from special status plant habitats.

4.4 Mowing or Grazing

Mowing and/or grazing in ULT suitable habitat (Park's wetlands) shall occur in early summer (prior to July 1) to keep vegetation low in anticipation for the ULT blooming period. The method, whether mowing or grazing, shall be determined by Nibley City using their best judgement. Mowing equipment used shall not cause significant surface disturbances such as deep tire marks, ruts, etc. in ULT habitat. No mowing/ grazing shall occur between July 1 and September 15 in anticipation of the growing season.

5.0 Adaptive Management Considerations

Through consultation with the USFWS, Civil Solutions Group anticipates the management efforts prescribed in this plan shall protect ULT individuals within the Park; however, construction has not started as of June 2025. Unforeseen changes to hydrology, plant communities, and excess human activity in ULT habitat could occur post-construction and impact known ULT populations within the park.

The continued post-construction monitoring inside the Park will allow for Nibley City to identify trends that may be impacting ULT populations, whether positive or negative, and allow for adaptive management techniques to be implemented as needed. New information and management techniques may also emerge also over time and could be used to better the Park's ULT population.

Nibley City or a contracted consultant shall communicate proposed adaptive management strategies before implementation.

Appendix A

Site Maps

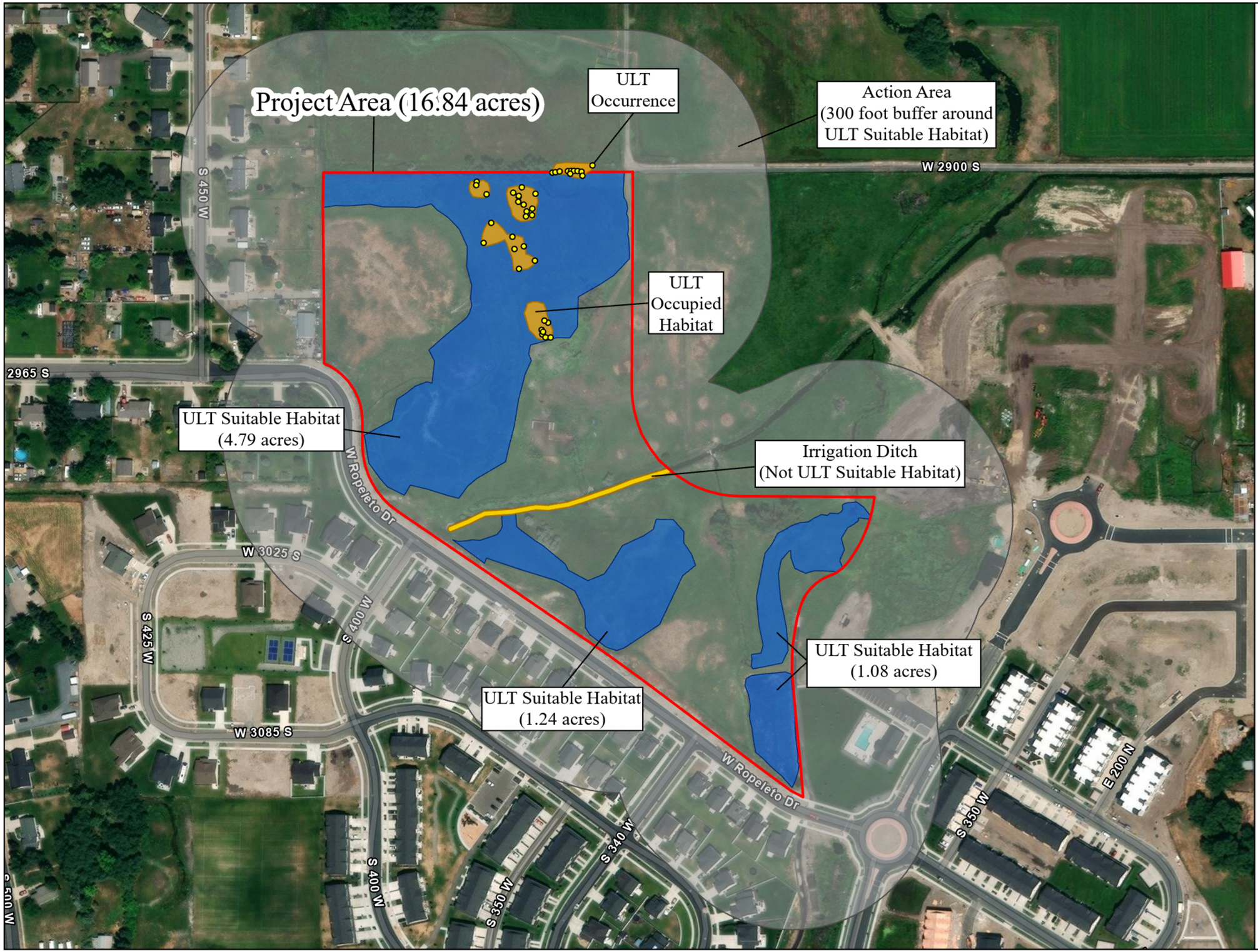


Figure 3
ULT Habitat Map

- Project Area
- ULT Suitable Habitat
- ULT Occupied Habitat
- ULT Occurrences
- Action Area
- Ditch

Total Project Area: 16.84 acres
Total Suitable Habitat: 7.11 acres
Total ULT Occupied Habitat: 0.36 acres
Total ULT Occurrences: 40
Survey Date: 8/2/2024 and 8/6/2024

Map Date: 4/25/2025 by M. Horihan
Aerial Imagery: Maxar 05/2023

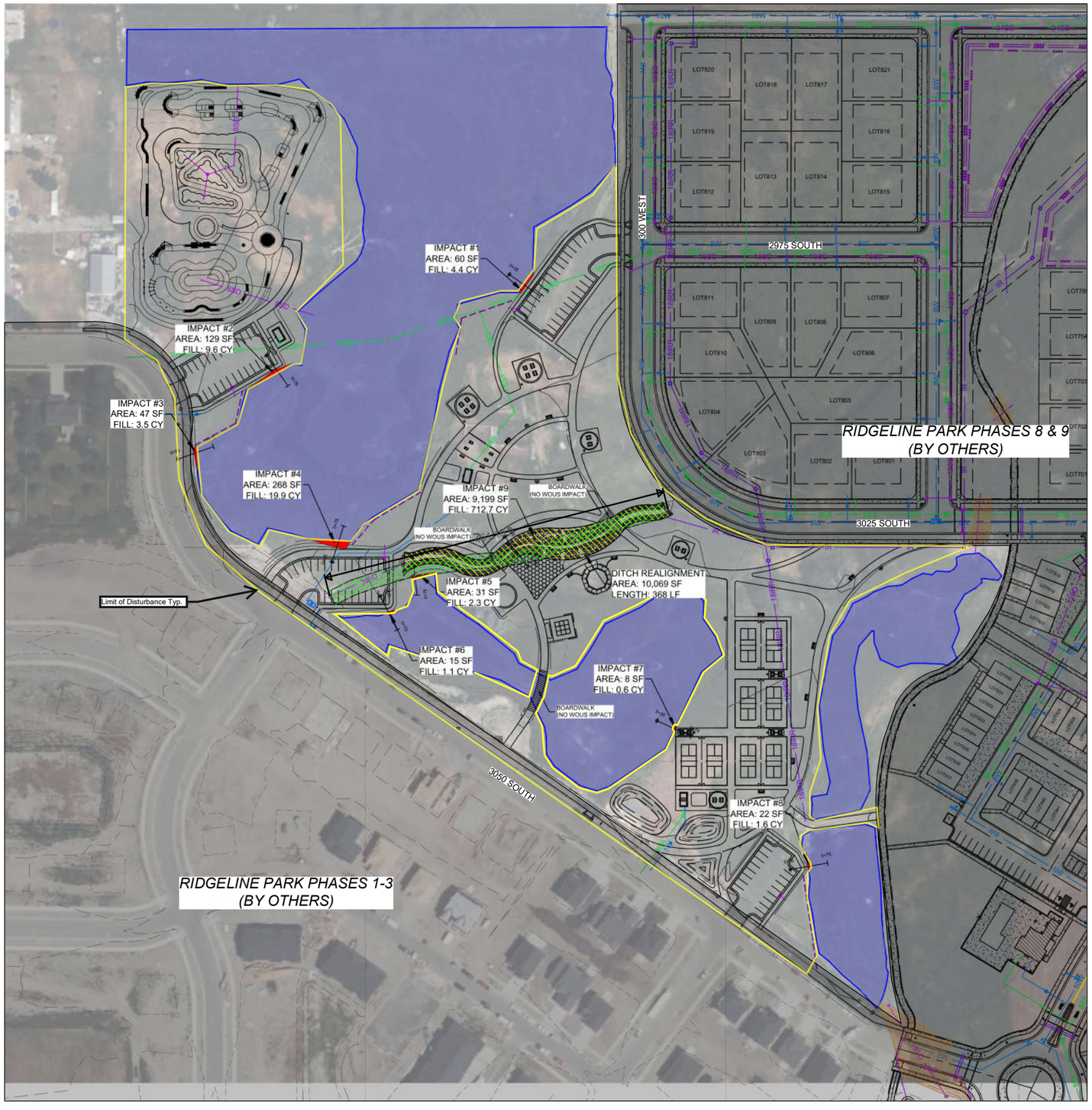
N

0 200 400
Feet

1 inch = 200 feet

Name: NAD 1983 StatePlane Utah North FIPS 4301 Feet
Datum: North American 1983
Projection: Lambert Conformal Conic

CIVIL SOLUTIONS GROUP



Impact Name	Impact Type	SF Impacts	CY Impacts	LF Impacts
Impact 1	Wetland	60	4.4	N/A
Impact 2	Wetland	129	9.6	N/A
Impact 3	Wetland	47	3.5	N/A
Impact 4	Wetland	268	19.9	N/A
Impact 5	Wetland	31	2.3	N/A
Impact 6	Wetland	15	1.1	N/A
Impact 7	Wetland	8	0.6	N/A
Impact 8	Wetland	22	1.6	N/A
Wetland Totals		580	43	N/A
Impact 9	Ditch	9199	712.7	461
Ditch Totals		9199	712.7	461

LEGEND

- WETLAND
- PERMANENT WETLAND IMPACT
- PERMANENT DITCH IMPACT
- DITCH REALIGNMENT

N

0 60 120 Feet

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

RIDGELINE CITY PARK
WETLAND IMPACTS
401 WEST ROPELATO DRIVE
NIBLEY, UT 84321

MARK	DATE	DESCRIPTION

PROJECT #: 22-270
DRAWN BY: L. WESTON
PROJECT MANAGER: M. TAYLOR
ISSUED: 3/6/2025

WOUS IMPACTS MAP

1 OF 2

P:\2022\22-270 Ridgeline City Park\Environmental\Wetland Delineation\22-270 Wetland Impacts 03.04.25

Appendix B

Ute Ladies'-tresses Locations

ULT Locations Per August, 2024 Survey by BIO-West

Number	Latitude	Longitude
1	41.679975	-111.841049
2	41.679952	-111.840982
3	41.679936	-111.841026
4	41.679991	-111.841091
5	41.680021	-111.841088
6	41.680043	-111.841130
7	41.680075	-111.841064
8	41.680038	-111.840958
9	41.679906	-111.841032
10	41.679788	-111.841135
11	41.679733	-111.841047
12	41.679914	-111.840984
13	41.679603	-111.841084
14	41.680106	-111.841413
15	41.680034	-111.841337
16	41.679717	-111.841119
17	41.680025	-111.841088
18	41.680086	-111.841417
19	41.679650	-111.840961
20	41.679868	-111.841299

Number	Latitude	Longitude
21	41.679752	-111.841357
22	41.679303	-111.840885
23	41.679249	-111.840906
24	41.679223	-111.840902
25	41.679206	-111.840877
26	41.679206	-111.840837
27	41.679238	-111.840895
28	41.679291	-111.840857
29	41.680160	-111.840829
30	41.680163	-111.840805
31	41.680168	-111.840773
32	41.680170	-111.840709
33	41.680171	-111.840683
34	41.680171	-111.840663
35	41.680171	-111.840634
36	41.680167	-111.840604
37	41.680203	-111.840519
38	41.680155	-111.840690
39	41.680143	-111.840596
40	41.679303	-111.840885

Appendix C

2025 Cache County Prioritized Noxious Weeds List

Appendix A- 2025 Cache County Prioritized Noxious Weed List

Class	Weed Name	County Status
1A	African Rue	Watch
1A	Common Crupina	Watch
1A	Malta Starthistle	Watch
1A	Mediterranean Sage	Watch
1A	Plumeless Thistle	Watch
1A	Perennial Sorghums	Watch
1A	Spring Milletgrass	Watch
1A	Syrian Beancaper	Watch
1A	Camelthorn	Watch
1A	Sahara Mustard	Watch
1A	Garlic Mustard	Watch
1A	Purple Starthistle	Watch
1B	Giant Reed	EDRR
1B	Squarrose Knapweed	EDRR
1B	Vipers Bugloss	EDRR
1B	Yellow Toadflax	EDRR
1B	Small Bugloss	EDRR
1B	Japanese Knotweed	EDRR
1B	Dalmatian Toadflax	EDRR
1B	Diffuse Knapweed	EDRR
1B	Common St. Johnswort	EDRR
1B	Oxeye Daisy	EDRR
2A	Russian Knapweed	Control
2A	Rush Skeletonweed	Control
2A	Black Henbane	Control
2A	Elongated Mustard	Control
2A	Yellow Starthistle	Control

Class	Weed Name	County Status
2A	Purple Loosestrife	Control
2A	Perennial Pepperweed	Control
2A	Cutleaf Viper's Grass	Control
2A	Hoary Cress	Control
2A	Spotted Knapweed	Control
2A	Ventenata	Control
2B	Leafy Spurge	Control
2B	Phragmities	Control
2B	Musk Thistle	Control
2B	Goatsrue	Control
2B	Puncturevine	Control
3A	Poison Hemlock	Containment
3A	Salt Cedar	Containment
3A	Medusahead Rye	Containment
3A	Scotch Thistle	Containment
3A	Dyers Woad	Containment
3B	Houndstongue	Containment
3B	Canada Thistle	Containment
3B	Jointed Goatgrass	Containment
3B	Field Bindweed	Containment
3B	Quack Grass	Containment
4	Myrtle Spurge	Prohibited
4	Congongrass	Prohibited
4	Damesrocket	Prohibited
4	Russian Olive	Prohibited
4	Scotch Broom	Prohibited
4	Bermudagrass	Prohibited

Aquatic-Submerged Noxious Weeds

A-1B	Parrot's Feather	EDRR
A-1B	Eurasian Milfoil	EDRR

Additional County Declared Noxious Weeds

1B	Russian Salt Tree	EDRR
4	Crack Willow	Prohibited

Class 1A- WATCH Have not been identified in Cache County

Class 1AE- Eradicated Has been identified in Cache County in the past. Monitored annually

Class A-1B- Aquatics Extreme High priority, Eradication possible. Goal to move into 1A catagory

Class 1B-EDRR Extreme High priority, Eradication possible. Goal to move into 1A catagory

Class 2A-Control Known to exist in limited populations, high priority. Goal to move into 1B catagory

Class 2B- Control Known to exist in broader populations, high priority. Goal to move into 2A catagory

Class 3A- Containment Exist throughout Cache County, mid priority. Goal is to move into 2B category

Class 3B- Containment Exist Throughout Cache County, low priority. Goal is to move into 3A category

Class 4- Prohibited Threat through retail sale in the nursery and greenhouse industries.

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					PERSONNEL
Task	Gallons	Personnel	hours per	Times per year	Man Hours
Mowing- once per year		1	15	1	15
Edge/Trim		4	5	1	20
Vegetation monitoring and CC Noxious Weed coordination		1	6	1	6
ULT Surveys through 2026 BioWest		1	1	2	1
Additional Monitoring/ULT counts and USFW Reoprting every other year for 9 additional years		3	9	1	27
Restroom Cleaners					0
Prep infield for play					0
Maintain Infield offseason					0
Playground Maintenance					0
Playground Inspection					0
Playground Inspection					0
Sprinklers					0
Planter Maintenance					0
Dugouts and Bleachers @ play					0
Dugouts and Bleachers offseason					0
Snow Removal Trails					0
Boardwalk snow removal					0
Chemicals Landscaping					
Chemicals Herbicide	7.5	1	2	1	2
Gas utility					
Electric Utility					
Water Utility (irrigation)					

7.5 acres of potential ULT h

IBLEY CITY CENTER PARK- O&M FOR ULT AREAS ONLY- ESTIMATES

Hourly cost	how many years	Total Personnel cost
$38.00	20	$11,400.00
$38.00	20	$15,200.00
$90.00	20	$10,800.00
$6,206.00	2	$12,412.00
$38.00	9	$9,234.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$0.00
$38.00	20	$1,520.00
0		$0.00
0		$0.00
0		$0.00

EQUIPMENT

Equipment	# of pieces	Hours
Mower	1	15
Trimmer	4	5
Paper products (cases)		
Cleaner (gals)		
UTV	2	5
Blower		
Blower @ play		
UTV @ play		
UTV		
Blower		
Pressure Washer		
UTV		
SnowBlower		
Fertilizers (lbs)		
Herbicide (gals)	2.5	2
Gas Bill (avg/month)		
Electric Bill (avg/month)		
Water Bill (avg/month)		

habitat

/MATERIALS/UTILITIES				
Times per year	Hourly cost	How many years	Equipment Cost	Total Cost
1	$40.00	20	$12,000.00	$23,400.00
1	$7.00	20	$2,800.00	$18,000.00
0		20	$0.00	$10,800.00
0		20	$0.00	$12,412.00
0	$90.00	20	$0.00	$0.00
0	$22.00	20	$0.00	$0.00
1	$50.00	20	$10,000.00	$10,000.00
0	$7.00	20	$0.00	$0.00
0	$7.00	20	$0.00	$0.00
0		20	$0.00	$0.00
0		20	$0.00	$0.00
0	$50.00	20	$0.00	$0.00
0	$50.00	20	$0.00	$0.00
0	$7.00	20	$0.00	$0.00
0	$9.00	20	$0.00	$0.00
0	$60.00	20	$0.00	$0.00
0	$40.00	20	$0.00	$0.00
0	$1.25	20	$0.00	$0.00
1	$95.00	20	$9,500.00	$11,020.00
0	$197.57	20	$0.00	$0.00
0	$96.00	20	$0.00	$0.00
0	$71.75	20	$0.00	$0.00
0				
			$34,300.00	

Total 20-yr	$85,632.00

Total less ULT Surveys first 2 years	$73,220.00

Annually years 2 through 20	$3,661.00

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BIO-WEST, Inc.

1063 West 1400 North
Logan, Utah
84321-2291
Ph: 435.752.4202
Fx: 435.752.0507
www.bio-west.com

June 20, 2025

Attn: Mr. Tom Dickinson
Nibley City
455 West 3200 South
Nibley, Utah 84321

Subject: Scope of Work and Cost Estimate for Conducting Ute ladies'-tresses (*Spiranthes diluvialis*) surveys at Ridgeline Park, Nibley, UT

Dear Mr. Dickinson:

BIO-WEST, Inc. (BIO-WEST) is pleased to provide you with a brief description of the proposed scope of work and cost estimate for federally listed species surveys at Ridgeline Park in Nibley, UT. Specifically, BIO-WEST proposes to conduct botanical surveys for Ute ladies'-tresses (*Spiranthes diluvialis*) (hereafter, ULT). The surveys are associated with US Army Corps of Engineers (USACE) permitting as required by the U.S. Fish and Wildlife Service (USFWS). As I understand it, the USFWS is requiring two annual surveys for ULT beginning in 2025 and ending in 2026. The project area is illustrated on the attached Exhibit 1. BIO-WEST conducted a threatened and endangered species assessment for the project area in 2024 and classified portions of the project area as containing suitable habitat for ULT. BIO-WEST ecologists then initiated species protocol surveys for ULT during the bloom period. ULT was positively identified within the project area during the protocol surveys and the population was mapped over five separate occurrences. In addition, suitable habitat was classified and mapped within the project area (Exhibit 1).

ULT is a small orchid with white to cream colored flowers known to occur in Northern Utah and is listed as threatened by the (USFWS). The plant occurs in low to mid-elevation wetlands and riparian zones in the central Rocky Mountains (Fertig et al. 2005). Due to the difficulty of identifying the plant when not in flower, the USFWS interim survey requirements for ULT specify that surveys be conducted during the bloom period, which typically ranges from late July to early September (USFWS 1992). The following is a brief summary of the proposed scope of work and cost estimate for the conducting ULT protocol surveys and reporting, including labor and other direct costs.

Ute ladies-tresses (*Spiranthes diluvialis*) Protocol Surveys

Protocol surveys for ULT will be conducted accordance with the USFWS *Interim Survey Requirements for Ute ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 1992) and the USFWS *Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011). BIO-West ecologists will survey the project area during the bloom period by walking linear transects through all mapped suitable habitat. The transects will be appropriately spaced in order to accurately scan the ground for individual ULT plants. When individuals or populations are located, ecologists will mark the area with a GPS unit capable of collecting ground positions with sub foot accuracy. An inventory of all ULT plants within the area will

be generated and the data will be recorded on Utah Natural Heritage Program field data forms. Plant phenology, population size, population health, and representative photographs will be recorded. Information about the habitat conditions such as aspect, slope, topographic positions, ULT associated species present, soil type, hydrology, general plant community cover, and potential population stressors will also be described. Any populations observed outside of the known occupied habitat will be recorded. The occurrences will be marked with pin flags so that Nibley City has a reference of the occurrence locations and to help guard against any habitat disturbance.

Ute ladies-tresses (*Spiranthes diluvialis*) Survey Report
BIO-WEST will prepare a brief letter report describing the results of the ULT survey. The report will include a description of the biological setting, plant community, and suitable habitat conditions such as soils, hydrology, and associated species present. The report will contain survey methods, survey date, appropriate maps, photos, and abundance data for the ULT populations positively identified and surveyed. The report will include a description of any appropriate habitat observed for the listed species. The report will also include a discussion of plant vigor, assessments to threats of the population, and a discussion of the results in the event that no ULT individuals or populations are located. BIO-WEST will provide you with the geospatial data.

Cost Estimate Total
The total estimated project cost for conducting surveys and reporting in 2025 is **$6,060**

The cost for conducting surveys in 2026 is anticipated to increase by 5% to **$6,351**

The total estimated project cost for completing two consecutive surveys and reporting is $12,411

Assumptions

- The ULT survey and reporting following the USFWS protocols are adequate and appropriate for the project needs. If the USFWS requires additional surveys and information outside this scope of work, BIO-WEST can provide an additional cost for those items.
- This scope and cost do not include any further consultation with the USFWS.
- This scope and cost are associated with ULT survey and reporting only and does not include any Section 404 Clean Water Act permitting tasks.

Schedule
The field work for these tasks can be completed as soon as the 2025 bloom period for ULT begins, which is usually mid-July to early August. The annual reporting can be completed within 30-60 days of field work completion.

Please feel free to contact me with any questions you may have. I can be reached at the office (435) 752-4202, mobile phone (435) 881-0500, or email at ttaylor@bio-west.com. We appreciate your interest in BIO-WEST and hope to continue working with you on this project.

Sincerely,

Travis A. Taylor
Ecologist, BIO-WEST, Inc.

Enclosures:
Exhibit 1 – Ridgeline Park ULT occupied occurrences and suitable habitat map.

Literature Cited

Fertig, W., R. Black, and P. Wolken. 2005. Rangewide status review of Ute ladies'-tresses (Spiranthes diluvialis). Salt Lake City: U.S. Fish and Wildlife Service and Central Utah Water Conservancy District.

[USFWS] U.S. Fish and Wildlife Service. 1992. Interim survey requirements for Spiranthes diluvialis. A letter from the USFWS from the Colorado state office, dated November 23, 1992. Golden, Colorado.

[USFWS] 2011. U.S. Fish and Wildlife Utah field office guidelines for conducting and reporting botanical inventories and monitoring of federally listed, proposed and candidate plant. West Valley City, Utah. 19 p.

Ridgeline Park
Nibley, UT

Exhibit 1

August 23, 2024

LEGEND

- SURVEY AREA
- SPDI OCCURRENCE
- SPDI OCCUPIED HABITAT
- SPDI SUITABLE HABITAT

0 75 150 225 300 Feet

1 inch equals 150 feet

N

Map Date: 6/20/2025

BIO-WEST
www.bio-west.com
435.752.4202

Scale: 1:8,000 (1 Inch = 150 feet when printed at 11"x17"
Projection: WGS 1984
Imagery Date: 2024 (Hexagon)
Map Author: Travis Taylor, BIO-WEST, Inc.

When Recorded Return to:
Nibley City Recorder
455 W 3200 S
Nibley, UT 84321-6337

THIS DEED OF PROTECTIVE EASEMENT (Easement), made this **52nd day of July 2045**, established by Nibley City Corporation, a municipal corporation of Cache County, State of Utah, whose address is 455 West 3200 South Nibley, Utah, 84321-6337, herein referred to as "City" establishes protection of identified Ute Ladies'-tresses (*Spiranthes diluvialis* or ULT), a threatened orchid currently listed under the Federal Endangered Species Act (ESA), and its associated habitat located on portions of Nibley City Center Park (Park), previously known as Ridgeline City Park, located near the intersection of 2695 South Ropelaeto Drive in Nibley, Cache County, Utah. The Park is approximately 16.8 acres in size and consists of numerous recreational facilities, including but not limited to bike park(s) pickleball courts, picnic facilities, benches, pavilions, water feature, restrooms, walking trails, boardwalks, playground, landscaped and natural open areas, and other common park amenities. The parcel is identified as Cache County parcel 03-020-0034 (Exhibit A).

The Easement is recognized as a long-term conservation measure in cooperation with United States Fish and Wildlife Service (USFWS) and Nibley City (City) as part of the City's section 404 Clean Water Act (CWA) permit with the United States Army Corps of Engineers (USACE) (SPK-2021-00107). This Easement shall be held by Nibley City in cooperation with USFWS.

WITNESSETH:

WHEREAS, City is the owner of certain property, herein referred to as the "Park," also known as the Nibley City Center Park and previously known and Ridgeline City Park, consisting of 16.8 acres, more or less, lying and being situated at approximately 2695 South Ropelaeto Drive, Nibley Cache County, Utah; and

WHEREAS, City and USFWS desire to establish and maintain reasonable protection of identified ~~Ute Ladies'-Tresses (*Spiranthes diluvialis* or ULT),~~ULT, a threatened orchid currently listed under the Federal Endangered Species Act (ESA), and its associated habitat located on portions of the Park; and

WHEREAS, City desires to construct a community park consisting of numerous recreational facilities, including but not limited to bike park(s) pickleball courts, picnic facilities, benches, pavilions, walking trails, boardwalks, playground, and other common park amenities; and

WHEREAS, City desires to retain the right to develop and maintain a community park and open areas on the Property; and

WHEREAS, City and USFWS desire to record a long-term conservation measure "Easement" that accomplishes these objectives.

NOW, THEREFORE, in recognition of the foregoing, the City does hereby hold and control a Protective Easement in cooperation with USFWS, with the obligation to restrict the use as described below, of the herein described real estate, to wit:

The "Park" containing approximately 16.8 acres and is shown as Exhibit B~~A~~.

The restrictions imposed hereby on the use of the Property, the acts which the City covenants to do or not do shall run with the land and shall be as follows:

1. Park property will not be subdivided;

2. Park will be developed as outlined in the Park plan, Exhibit ~~A~~B. Construction (grading, paths, boardwalks, or any other activity that encroaches upon Easement) shall not occur inside of the Easement area/outside of areas approved by the USACE and USFWS.

3. Additional buildings or structures may be considered where located outside surveyed ULT populations after completion of additional Environmental Site Assessment in coordination with USFWS and other required permitting agencies. Additional buildings and structures may be considered no sooner than 3-years after recordation of Easement;

4. Additional walkways, and Park amenities beyond those outlined in the Park plan may be considered where located outside surveyed ULT populations after completion of additional ~~Environmental Site Assessment in~~ESA coordination with USFWS and other required permitting agencies. Additional walkways and Park amenities may be considered no sooner than 3-years after recordation of Easement;

5. Additional boardwalks beyond those outlined in the Park plan may be considered after completion of additional ~~Environmental Site Assessment in~~ESA coordination with USFWS and other required permitting agencies. Additional boardwalks may be considered no sooner than 3-years after recordation of Easement;

6. Nibley City shall be allowed to limit public access to the Easement (ULT habitat) within the Park's boundaries. Exceptions include but are not limited to yearly mowing and/or grazing activities prior to July 1st, ULT monitoring activities, public outreach/ educational programs pertaining to ULT or wetland habitat, and weedy/invasive vegetation management. These activities that require access to the Easement are also outlined in the Habitat Management Plan for Ute Ladies'-tresses document provided in Exhibit B.

7. Public access will be allowed within the Park, limited to walkways, boardwalks, landscaped areas, park amenities, and similar areas;

8. D~~Leashed d~~ogs will be allowed within the Park if on a leash and~~,~~ limited to established walks, boardwalks, and other suitable park amenities such as pavilions, playgrounds, landscaped, and similar areas;

9. Park will be kept free and clear of any junk, trash, rubbish, or other unsightly or offensive material;

10. City will be allowed to continue formal ULT survey through the 2026 growing season. Survey results shall be transmitted to USFWS within a reasonable time thereafter;

11. After formal ULT surveys are completed in 2026, City will be allowed to facilitate bi-annual (every two calendar years) monitoring of ULT habitat and provide a report to USFWS. This may be as simple as volunteer ULT counting days and reporting findings of ULT populations observed and the condition of ULT habitat whether it is stable, declining, or increasing;

12. City will be allowed to provide educational signage/kiosk that highlights the unique character and conservation efforts of Ute Ladies'-Tresses;

13. The Easement shall be held for a term of 20 years. Easement is subject to renewal/extension if mutually agreed upon by USFWS and City. Conditions, such as length of renewed Easement, monitoring, and other ~~resrictions~~restrictions shall be negotiated at the end of the initial 20-year Easement.

14. City shall be allowed to operate and maintain the Park using Best Management Practices (BMPs) and proven habitat management techniques known to protect and preserve ~~Ute Ladies'-Tresses~~ULT as acknowledged and agreed upon by the City and USFWS, further detailed in the Ridgeline City Park Habitat Management Plan for Ute Ladies'-Tresses, June 2025. The Management Plan should be adapted as habitat changes using reasonable adaptive management practices;

15. City shall be allowed to allocate funds for maintenance of the Easement. This may be in the form of the City's General Fund, Public Works or Parks and Recreation Department budgets or by other reasonable financial means;

16. Violation of the terms of this Easement shall not result in termination, but shall be enforceable by specific performance and other remedies as allowed by law.

~~15.~~17. Disputes concerning this Easement shall be subject to Utah law and ~~jurisdication~~jurisdiction and venue shall be in Cache County, Utah.

WITNESS the following signature and seal:

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_____
United States Fish and Wildlife Service

By _____
Mayor Larry E. Jacobsen
Nibley City Corporation

Exhibit A

Legal Description

Parcel ID: 03-020-0034

Property Description: Beginning at a point on the easterly line of ELKHORN ESTATES Subdivision, Phase 6, 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 679.06 feet and East 2,656.06 feet from the West 1/4 Corner of Section 21, T11N, R1E, S.L.B.& M.; thence N89°42'00"E 654.02 feet; thence S0°11'30"W 453.59 feet; thence along the arc of a 230.00 foot radius curve to the left 361.28 feet through a central angle of 90°00'00" (chord: S44°48'30"E 325.27 feet); thence S89°48'30"E 266.89 feet; thence along the arc of a 970.00 foot radius curve to the right 17.17 feet through a central angle of 1°00'52" (chord: S89°18'04"E 17.17 feet); thence Southwesterly along the arc of a 284.50 foot radius non-tangent curve (radius bears: N83°10'39"W) to the right 152.45 feet through a central angle of 30°42'07" (chord: S22°10'24"W 150.63 feet); thence along the arc of an 80.00 foot radius curve to the right 45.86 feet through a central angle of 32°50'49" (chord: S53°56'53"W 45.24 feet) to a point of reverse curvature; thence along the arc of a 100.00 foot radius curve to the left 90.38 feet through a central angle of 51°47'09" (chord: S44°28'43"W 87.34 feet) to a point of compound curvature; thence along the arc of a 400.00 foot radius curve to the left 171.92 feet through a central angle of 24°37'33" (chord: S6°16'22"W 170.60 feet); thence S6°02'25"E 146.26 feet; thence along the arc of a 120.00 foot radius curve to the right 78.11 feet through a central angle of 37°17'48" (chord: S12°36'29"W 76.74 feet); thence S31°15'23"W 1.97 feet; thence Northwesterly along the arc of a 170.00 foot radius non-tangent curve (radius bears: N31°15'16"E) to the right 16.17 feet through a central angle of 5°27'03" (chord: N56°01'12"W 16.17 feet); thence N53°17'41"W 376.62 feet; thence along the arc of a 3,050.00 foot radius curve to the left 138.10 feet through a central angle of 2°35'39" (chord: N54°35'30"W 138.09 feet); thence N55°53'20"W 487.18 feet; thence along the arc of a 170.00 foot radius curve to the right 164.57 feet through a central angle of 55°28'03" (chord: N28°09'19"W 158.22 feet); thence N0°25'17"W 52.75 feet; thence along the arc of a 130.00 foot radius curve to the left 152.88 feet through a central angle of 67°22'47" (chord: N34°06'43"W 144.22 feet) to the easterly line of ELKHORN Subdivision, Phase 7 according to the Official Plat thereof on file in the Office of the Cache County Recorder, and as currently monumented and constructed; thence N0°25'17"W 403.07 feet along said Plat and said Phase 6 to the point of beginning. CONT 16.82 AC

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Exhibit B

ULT Habitat Management Plan Including Site Plans