

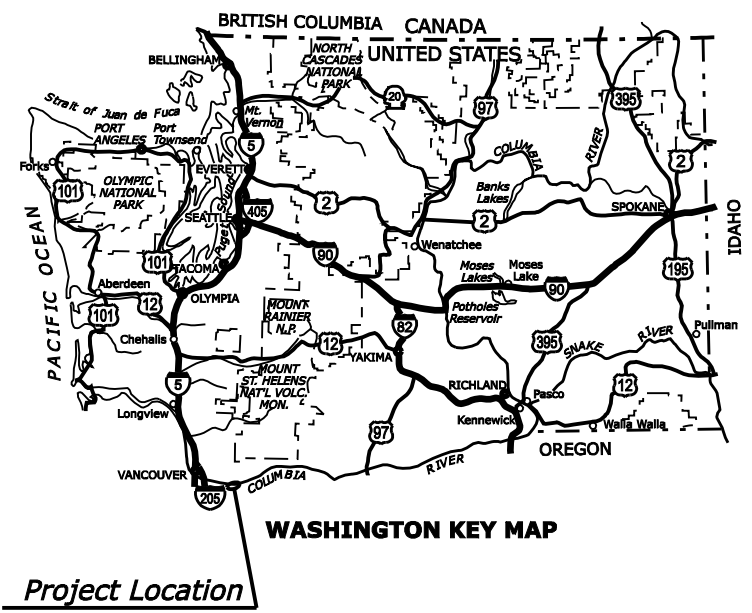
U. S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION



SUMMARY OF PLANS FOR PROPOSED PROJECT WA RRP STEI 10(1)

STEIGERWALD LAKE REFUGE VISITOR KIOSK AND TRAIL

STEIGERWALD LAKE NATIONAL WILDLIFE REFUGE CLARK COUNTY WASHINGTON



TYPE OF CONSTRUCTION:

Grading, base, pedestrian bridge, pedestrian trail

DESIGN DESIGNATION:

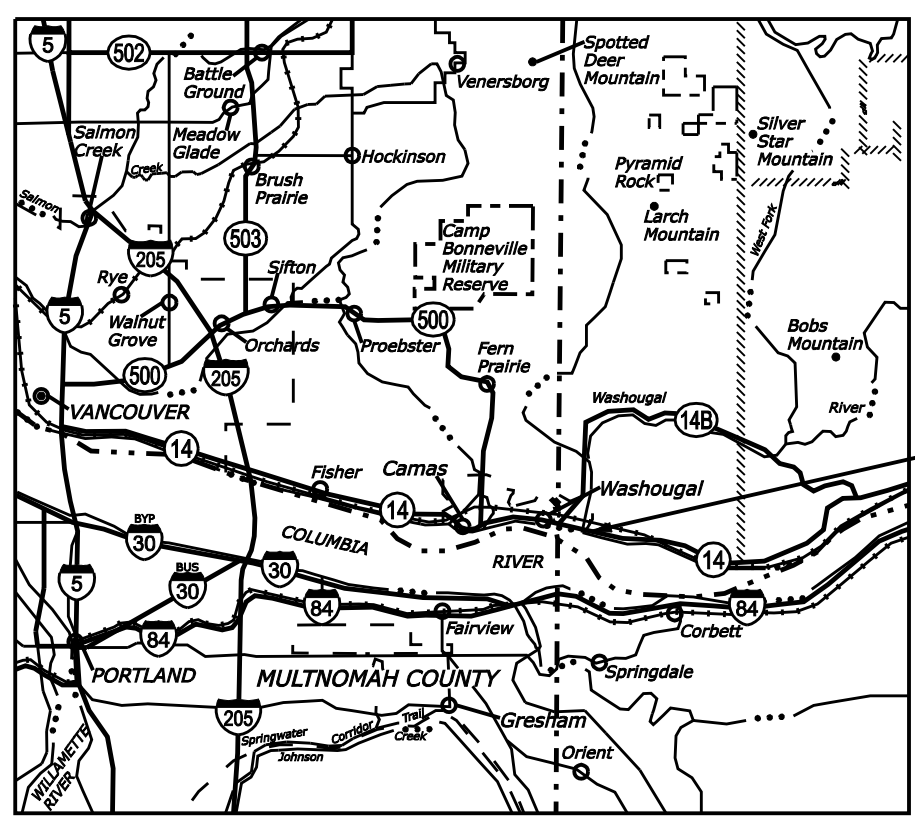
V 15 mph
e (max) 0.040

SPECIFICATION:

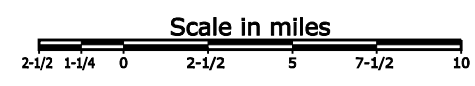
Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 US Customary Units



PLANS PREPARED BY
**U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**
WESTERN FEDERAL LANDS HIGHWAY DIVISION
VANCOUVER, WASHINGTON



PROJECT LOCATION



INDEX TO SHEETS

A. GENERAL INFORMATION

- A.1 TITLE SHEET
- A.2 VICINITY MAP

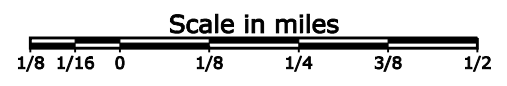
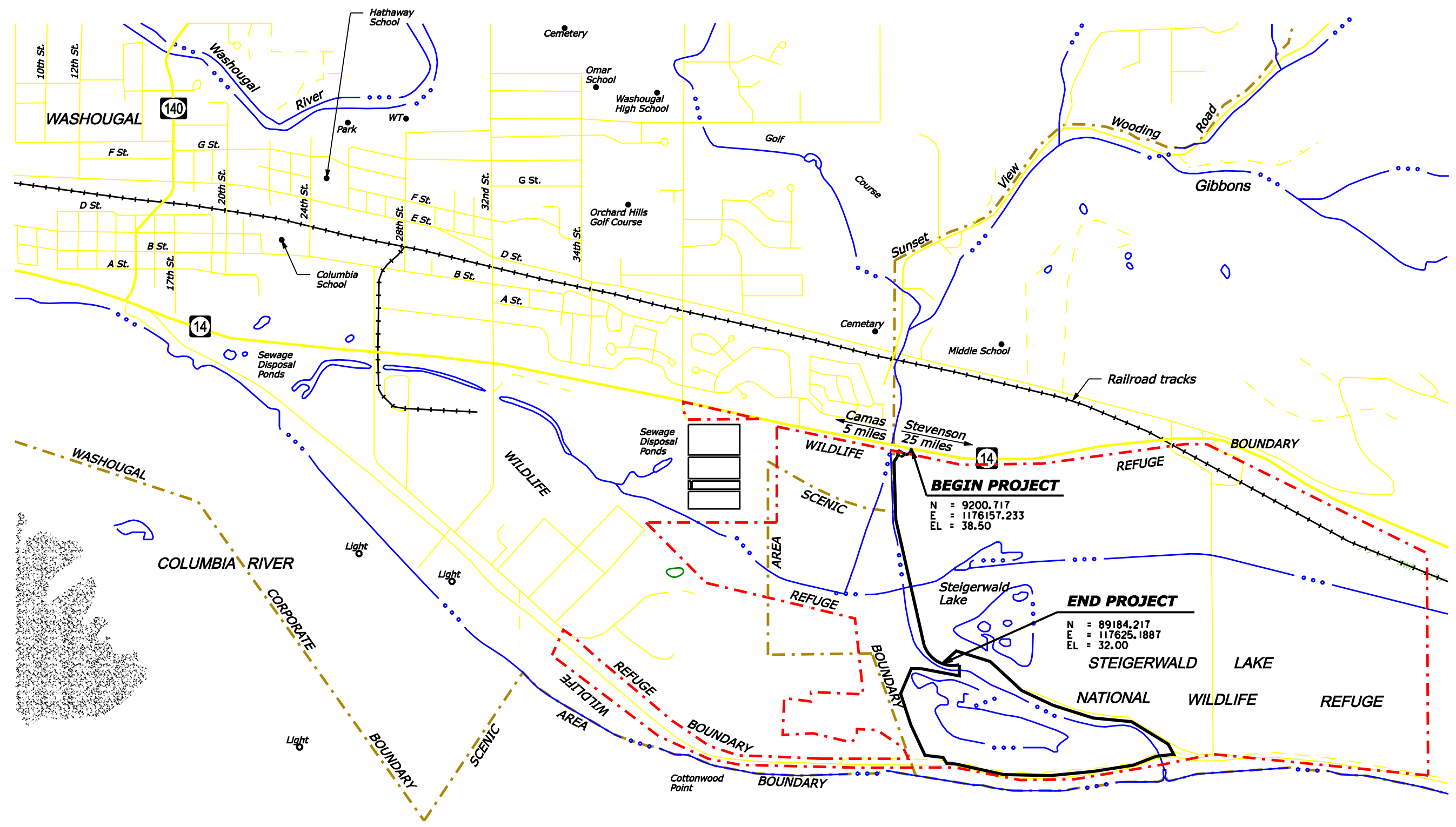
B. WETLAND DELINEATION

- B.1 WETLAND DELINEATION 1 OF 8
- B.2 WETLAND DELINEATION 2 OF 8
- B.3 WETLAND DELINEATION 3 OF 8
- B.4 WETLAND DELINEATION 4 OF 8
- B.5 WETLAND DELINEATION 5 OF 8
- B.6 WETLAND DELINEATION 6 OF 8
- B.7 WETLAND DELINEATION 7 OF 8
- B.8 WETLAND DELINEATION 8 OF 8

C. PROJECT FEATURES

- C.1 PROJECT OVERVIEW
- C.2 GRADING PLAN
- C.3 PARKING AREA SITE PLAN
- C.4 PLANTING PLAN
- C.4a IRRIGATION PLAN
- C.5 FOOT TRAIL TYPICAL SECTION
- C.6 TRAIL TURNOUTS
- C.7 ALTERNATE FISH LADDER OVERLOOK
- C.8 FOOT BRIDGE
- C.9 BOARDWALK
- C.10 REFUGE OVERLOOK DETAIL 1 OF 2
- C.11 REFUGE OVERLOOK DETAIL 2 OF 2
- C.12 SERVICE ROAD CLOSURE GATE
- C.13 ENTRANCE GATE 1 OF 3
- C.14 ENTRANCE GATE 2 OF 3
- C.15 ENTRANCE GATE 3 OF 3
- C.16 SIGN DETAILS
- C.17 ENTRANCE SIGN
- C.18 VAULT TOILET
- C.19 KIOSK DETAIL
- C.20 UTILITY LOCATION MAP
- C.21 POWER UTILITY DETAIL
- C.22 UTILITY BORING DETAIL

Checked by: _____
Designed by: _____
DATE: _____



VICINITY MAP

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Designed by:

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Scale 1":600'

PROJECT OVERVIEW

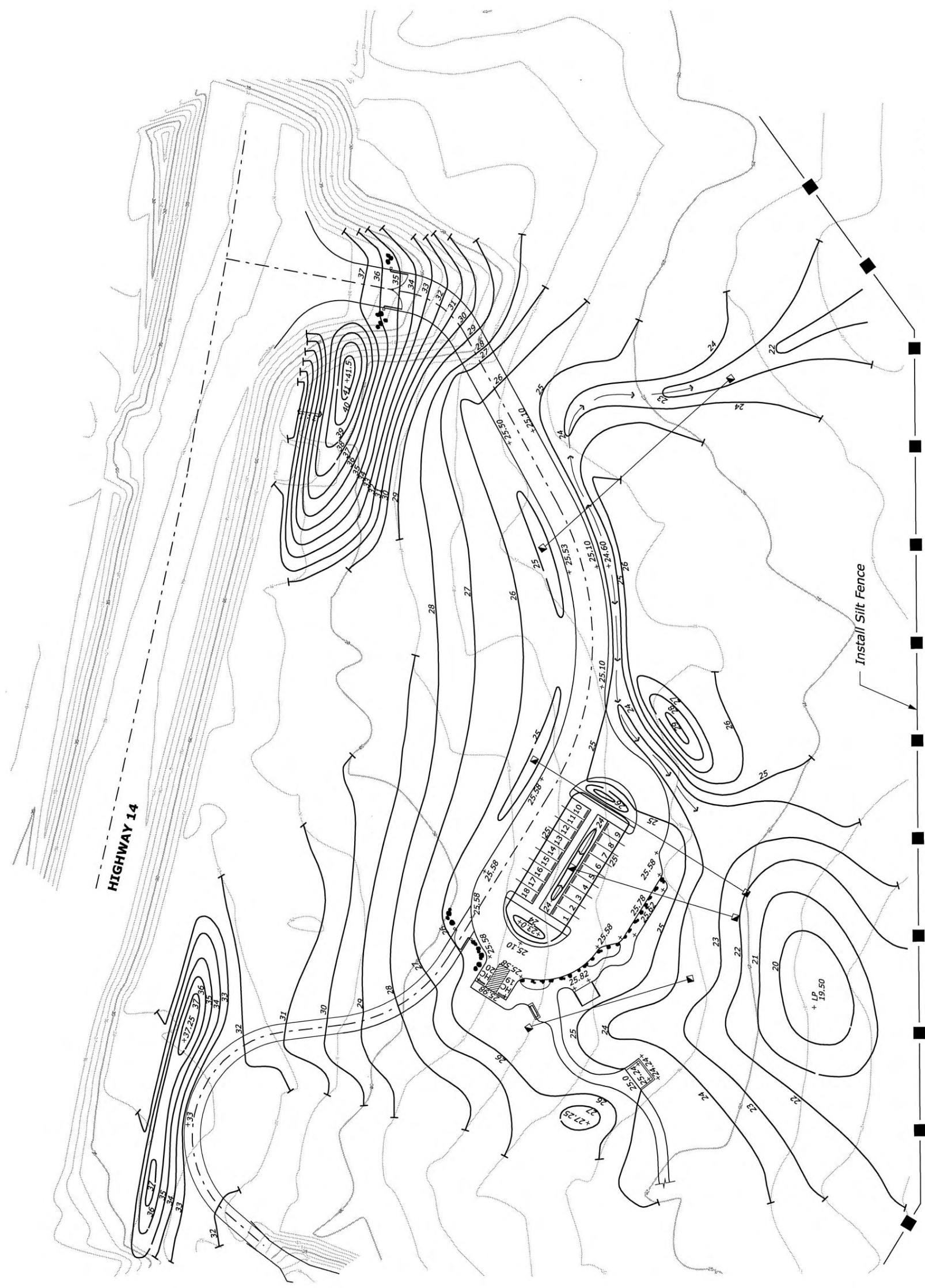
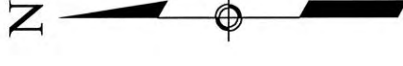
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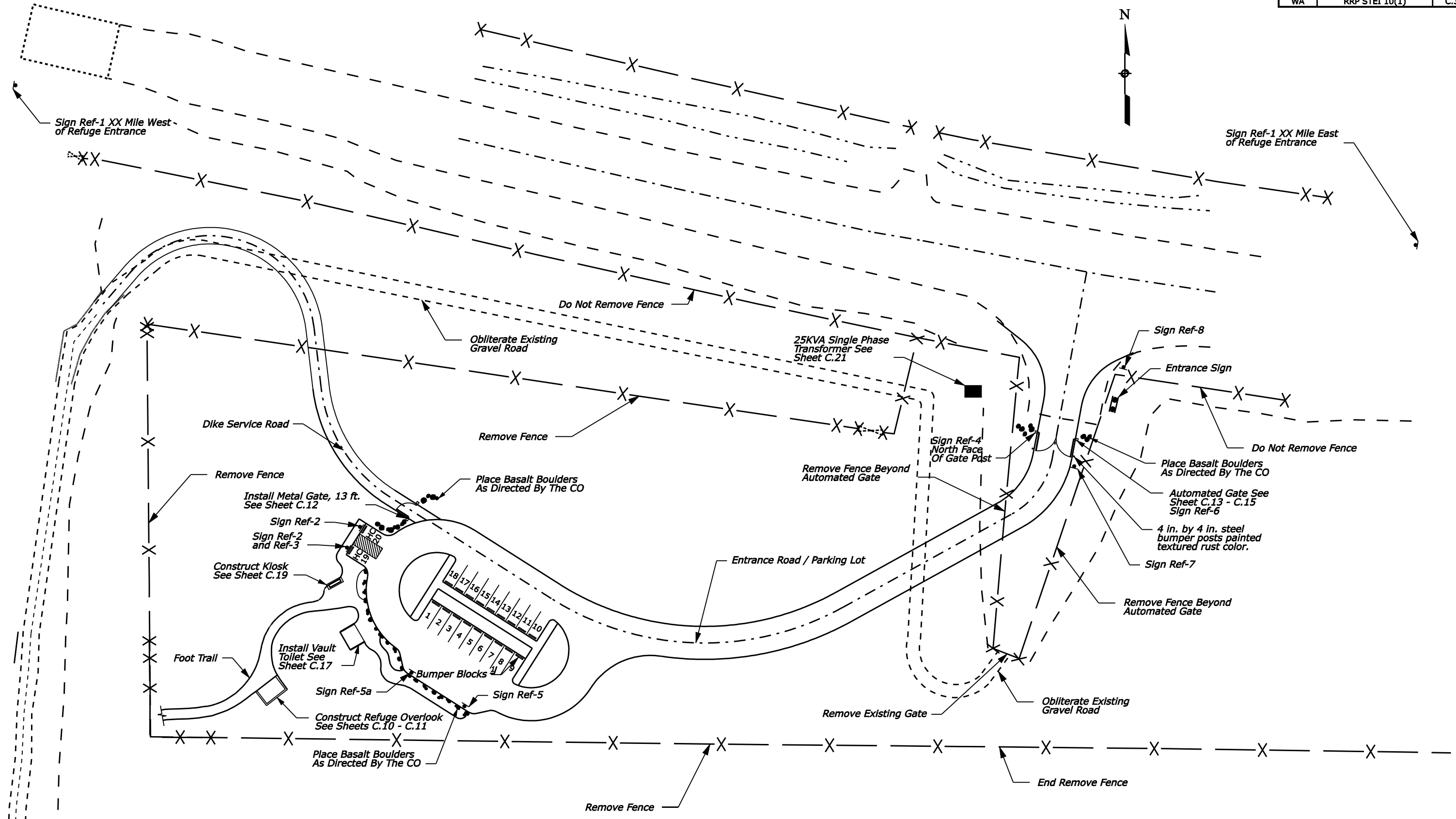
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STATE	PROJECT	SHEET NUMBER
WA	RRP STEI 10(1)	C.2



Scale 1"=80'

GRADING PLAN



FOOTNOTE:

1/ Install 6' Grey Plastic Bumper Block According to Manufacturer Recommendations

NOTE:

1. See sheet C.16 for sign descriptions.

Scale 1"=70'

**PARKING AREA
SITE PLAN**

Checked by: \$DATE\$
Designed by: \$DATE\$

\$DATE\$



Date: 10-22-07

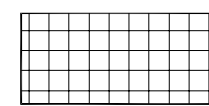
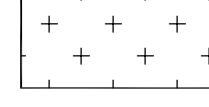


Scale: 1" = 30'-0"

Sheet Title: Planting Plan

Sheet No.


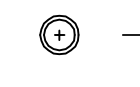
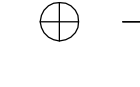
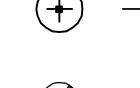
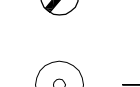
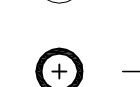
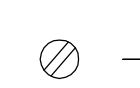




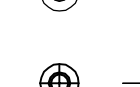


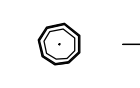


C. 4

SITE PLANTING & RESTORATION PLAN FORBS, SEED, & GROUNDCOVERS LEGEND


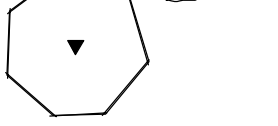

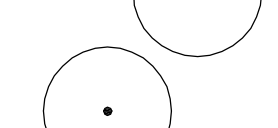

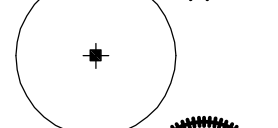


	1,785 <i>Arctostaphylos uva-ursi</i> 1 Gal. Kinnikinnik - 30" O.C.
	160,101 Sq. Ft. Prairie Seed Mix See Specifications
	2,191 <i>Fragaria chiloensis</i> 4" Pot Wild Strawberry - 18" O.C.
	32,502 Sq. Ft. Riparian Woodland Seed Mix See Specifications

- NOTES:**
- CONTRACTOR SHALL PROVIDE TOPSOIL, SOIL AMENDMENTS, AND MULCH PER SPECIFICATIONS.
 - ALL PLANTS SHALL BE INSTALLED IN ACCORDANCE WITH PLANTING DETAILS AS SHOWN ON SHEET L5.2 AND SPECIFICATIONS.

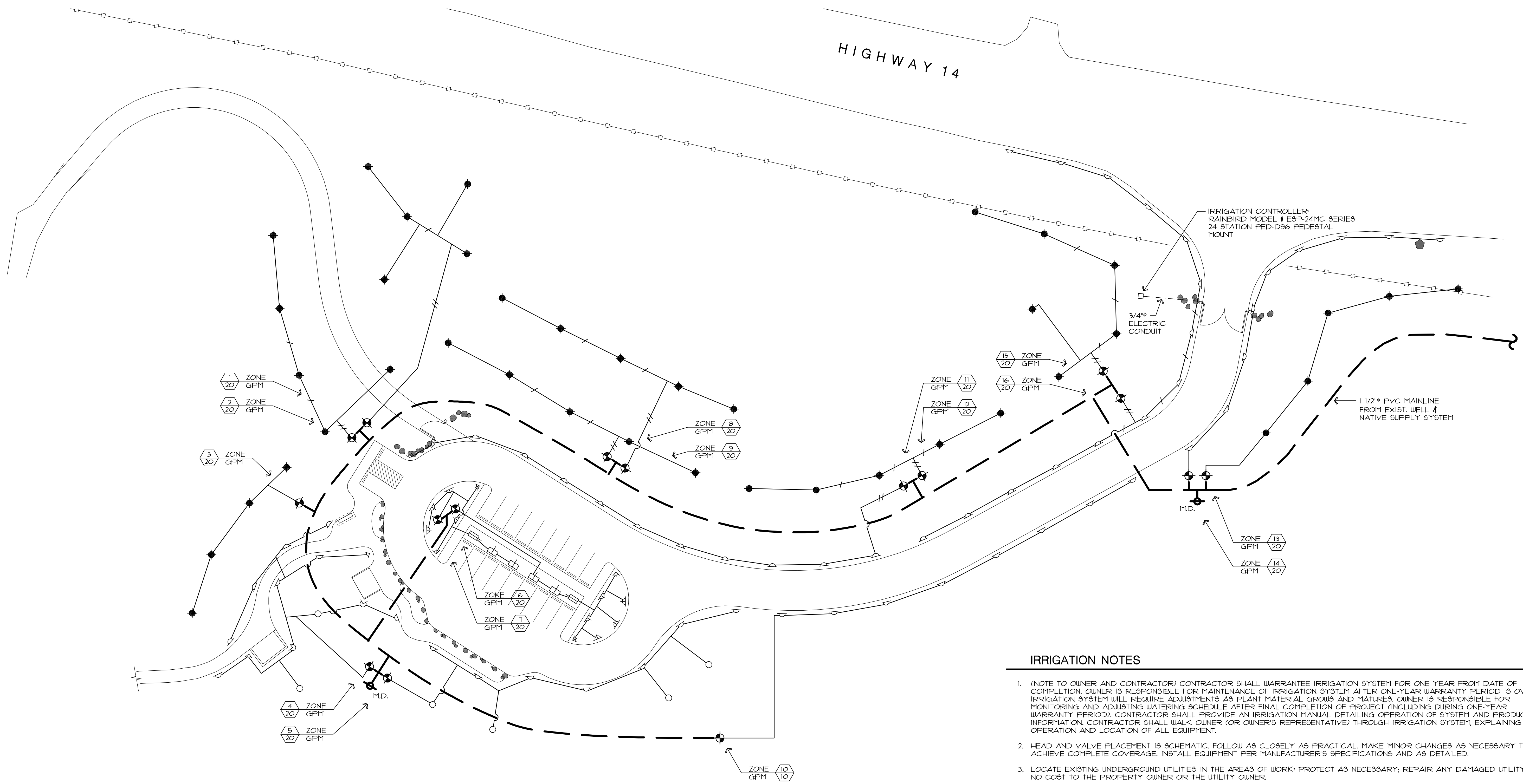
SITE PLANTING & RESTORATION PLAN SHRUBS / GROUNDCOVER LEGEND

	66 <i>Amelanchier alnifolia</i> 3 Gal. Western Serviceberry
	131 <i>Cornus sericea</i> 1 Gal. Red-Osier Dogwood - 5' O.C.
	1,716 <i>Gaultheria shallon</i> 1 Gal. Salal - 30" O.C.
	40 <i>Holodiscus discolor</i> 2 Gal. Ocean Spray - 7' O.C.
	1,231 <i>Mahonia aquifolium</i> 3 Gal. Oregon Grape - 36" O.C.
	36 <i>Oemleria cerasiformis</i> 2 Gal. Indian Plum - 7' O.C.
	303 <i>Physocarpus capitatus</i> 2 Gal. Ninebark - 5' O.C.
	12 <i>Polystichum munitum</i> 1 Gal. Western Sword Fern - 30" O.C.
	34 <i>Rhamnus purshiana</i> 4-6' Cascara - B4B, Multi-Trunk
	30 <i>Rhododendron occidentale</i> 2 Gal. Western Azalea - 4' O.C.
	290 <i>Ribes sanguineum</i> 3 Gal. Flowering Currant - 6' O.C.
	91 <i>Rosa gymnocarpa</i> 2 Gal. Bald Hip Rose - 4' O.C.
	1,539 <i>Rosa nutkana</i> 2 Gal. Nootka Rose - 3' O.C.
	915 <i>Spiraea douglasii</i> 2 Gal. Douglas Spiraea - 5' O.C.
	329 <i>Symphoricarpos albus</i> 1 Gal. Common Snowberry - 4' O.C.
	114 <i>Vaccinium ovatum</i> 1 Gal. Evergreen Huckleberry - 36" O.C.
	124 <i>Vaccinium parvifolium</i> 1 Gal. Red Huckleberry - 36" O.C.

SITE PLANTING & RESTORATION PLAN TREE LEGEND

	18 <i>Acer macrophyllum</i> 1 1/2" Cal. Big Leaf Maple - B4B
	30 <i>Alnus rubra</i> 2" Cal. Red Alder - B4B
	12 <i>Cornus nuttallii</i> 2" Cal. Pacific Dogwood - B4B
	12 <i>Fraxinus latifolia</i> 1" Cal. Oregon Ash - B4B or Container
	19 <i>Populus trichocarpa</i> 1" Cal. Black Cottonwood - B4B or Container, Single or Multi-Trunk
	24 <i>Pseudotsuga menziesii</i> 8' Douglas Fir - B4B, Branched To Ground
	16 <i>Quercus garryana</i> 1" Cal. Oregon White Oak - Container
	30 <i>Thuja plicata</i> 6' Western Red Cedar - B4B, Branched To Ground





IRRIGATION NOTES

- (NOTE TO OWNER AND CONTRACTOR) CONTRACTOR SHALL WARRANT IRRIGATION SYSTEM FOR ONE YEAR FROM DATE OF COMPLETION. OWNER IS RESPONSIBLE FOR MAINTENANCE OF IRRIGATION SYSTEM AFTER ONE-YEAR WARRANTY PERIOD IS OVER. IRRIGATION SYSTEM WILL REQUIRE ADJUSTMENTS AS PLANT MATERIAL GROWS AND MATURES. OWNER IS RESPONSIBLE FOR MONITORING AND ADJUSTING WATERING SCHEDULE AFTER FINAL COMPLETION OF PROJECT (INCLUDING DURING ONE-YEAR WARRANTY PERIOD). CONTRACTOR SHALL PROVIDE AN IRRIGATION MANUAL DETAILING OPERATION OF SYSTEM AND PRODUCT INFORMATION. CONTRACTOR SHALL WALK OWNER (OR OWNER'S REPRESENTATIVE) THROUGH IRRIGATION SYSTEM, EXPLAINING OPERATION AND LOCATION OF ALL EQUIPMENT.
- HEAD AND VALVE PLACEMENT IS SCHEMATIC. FOLLOW AS CLOSELY AS PRACTICAL. MAKE MINOR CHANGES AS NECESSARY TO ACHIEVE COMPLETE COVERAGE. INSTALL EQUIPMENT PER MANUFACTURER'S SPECIFICATIONS AND AS DETAILED.
- LOCATE EXISTING UNDERGROUND UTILITIES IN THE AREAS OF WORK; PROTECT AS NECESSARY; REPAIR ANY DAMAGED UTILITY AT NO COST TO THE PROPERTY OWNER OR THE UTILITY OWNER.
- IRRIGATION SYSTEM IS DESIGNED TO OPERATE AT 30 PSI. VERIFY STATIC PRESSURE PRIOR TO COMMENCING CONSTRUCTION; CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY CORRECTIONS IF STATIC PRESSURE HAS NOT BEEN VERIFIED ON-SITE PRIOR TO INSTALLING SYSTEM.
- MAINS AND LATERALS TO HAVE A MIN. OF 12" COVERAGE. SLOPE ALL LINES MIN/ 1/2% TO MANUAL DRAIN VALVE.
- INSTALL MANUAL DRAIN VALVE AS NEEDED TO COMPLETELY DRAIN ALL LINES. PROVIDE KEY TO OWNER. MANUAL DRAIN VALVE SHALL BE 1/2" BRASS, GATE TYPE VALVE, CALCO 122M OR EQUAL; INSTALL WITH 2" PVC VERTICAL RISER AND WEATHERMATIC VALVE COVER #906 (OR APPROVED EQUAL) - INSTALL FLUSH WITH FINAL GRADE. INSTALL MINIMUM OF ONE MANUAL CONTROL VALVE PER ZONE AND/OR AS SHOWN ON DRAWINGS.
- MAINS AND LATERALS TO BE PVC 1120, CL 200. PVC FITTINGS TO BE SCH 40. USE TEFLON TAPE ON ALL THREADED FITTINGS.
- THOROUGHLY FLUSH ALL PIPING BEFORE TESTING AND INSTALLATION OF HEADS. TEST SYSTEM AT MAINLINE PRESSURE FOR ONE HOUR WITHOUT LOSING PRESSURE. CORRECT ANY LEAKS OR DEFECTS.
- PROVIDE PROJECT RECORD DRAWING ON A PRINT. RECORD ALL CHANGES ON A DAILY BASIS INCLUDING LOCATIONS OF MANUAL DRAIN VALVES. LOCATE UNDERGROUND ITEMS WITH DIMENSIONS TO FIXED POINTS ON THE SITE.
- INSTALL ALL AUTOMATIC CONTROL VALVES IN VALVE BOXES. ALL VALVE BOXES SHALL BE APPROVED RECTANGULAR PLASTIC TYPE AMETEK OR EQUAL. INSTALL VALVES TO TAKE ADVANTAGE OF EFFICIENCIES AND TO MINIMIZE NUMBER OF VALVE BOXES. OWNER'S REPRESENTATIVE TO APPROVE ALL VALVE BOX LOCATIONS PRIOR TO INSTALLATION.
- AUTO. CONTROL VALVE TO BE WEATHERMATIC AS SPECIFIED IN IRRIGATION LEGEND. INSTALL PVC BALL VALVE ON MAINLINE SIDE OF AUTOMATIC VALVE AND UNION ON ZONE SIDE OF VALVE.
- CONNECT ALL POP-UP HEADS TO LATERALS WITH 18 INCH MIN. LENGTH OF 'FUNNY PIPE'.
- ALL SHRUB HEADS ON 12" POP-UPS, AND ALL LAWN HEADS ON 6" POP-UPS, EXCEPT HEADS IN PLANTERS ON 4" POP-UPS AS NOTED.
- ADJUST ALL HEADS FOR UNIFORM AND PROPER COVERAGE PRIOR TO FINAL INSPECTION. NOTIFY OWNER'S REPRESENTATIVE 3 DAYS PRIOR TO SCHEDULE FINAL INSPECTION OF IRRIGATION SYSTEM.

IRRIGATION LEGEND

SYMBOL	ITEM	MANUFACTURER	MODEL #
◆	IMPACT HEAD ON 36" PVC RISER W/ STEEL STAKE	RAINBIRD	35A-TNT #10 NOZZLE 3.9 GPM 40' o.c. MAX.
⊙	ROTOR HEAD 12" POP UP	RAINBIRD	5512 #2 NOZZLE 1.2 GPM 30' o.c. MAX.
⊕	SPRAY HEAD	RAINBIRD	1812 15 SERIES
⊞	SPRAY HEAD	RAINBIRD	1812 SIDE STRIP
⊟	SPRAY HEAD	RAINBIRD	1812 END STRIP
⊕	AUTOVALVE	RAINBIRD	1" PEB AUTOVALVE
—	MAINLINE		1 1/2" φ PVC
—//—	LATERAL LINE		1 1/4" SCH 40 PVC
—/—	LATERAL LINE		1" SCH 40 PVC
—	LATERAL LINE		3/4" SCH 40 PVC
⊕	MANUAL DRAIN VALVE		

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BRIAN BAINSON
CERTIFICATE NO. 717

Steigerwald Lake NWR
Phase I
Gateway Center
Washougal, Washington



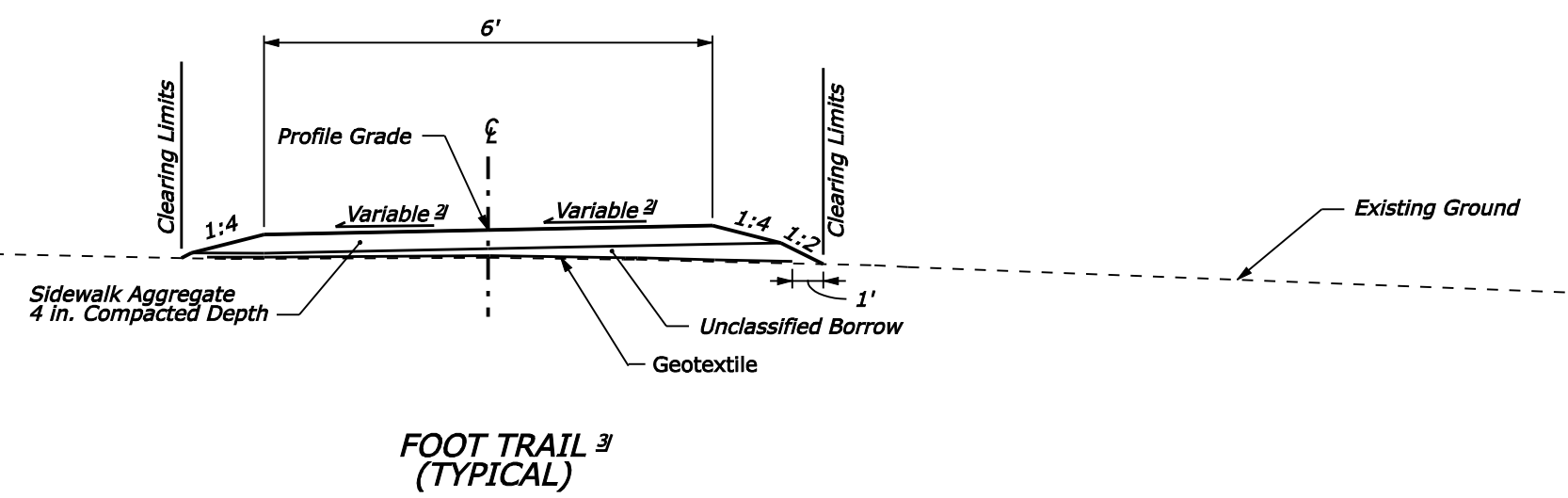
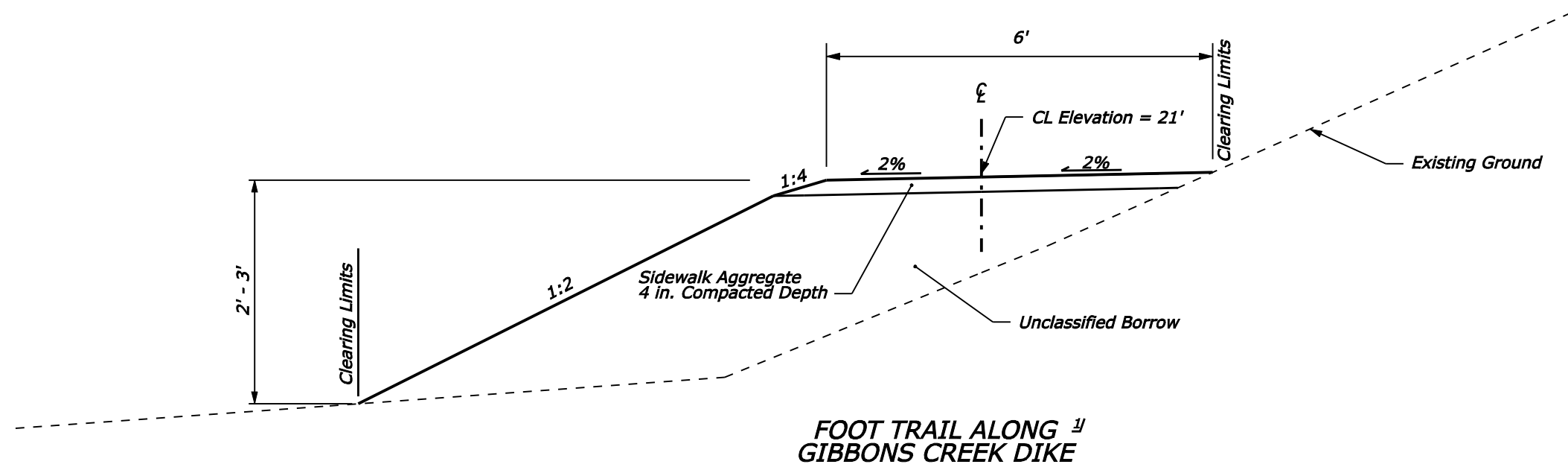
Date:
9-24-07

Scale:
1" = 30'-0"

Sheet Title:
Irrigation Plan

Sheet No.

C.4a



NOTE:

1. Cut grass to a maximum height of 4 inches. Do not damage turf before placing embankment / aggregate.
2. Sidewalk aggregate: $\frac{5}{8}$ " minus crushed aggregate uniformly graded from coarse to fine.

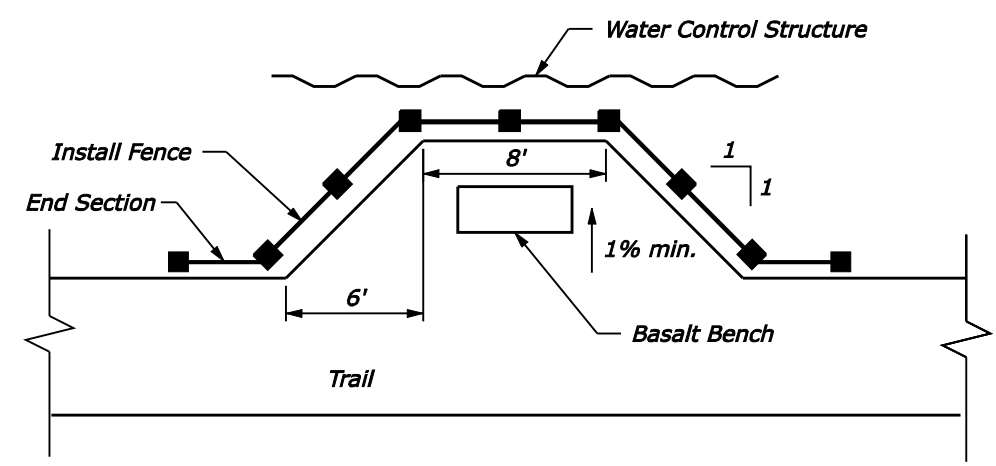
FOOTNOTE:

- ¹⁾ Survey staking data not provided. Construct against dike as shown. Maintain 2% super and 21' centerline elevation.
- ²⁾ Vary super to match existing terrain where possible. Maintain a minimum super of 1% and a maximum super of 3%. Profile grade shall not exceed 5%.
- ³⁾ Use unclassified borrow only when necessary to meet the superelevation requirement.

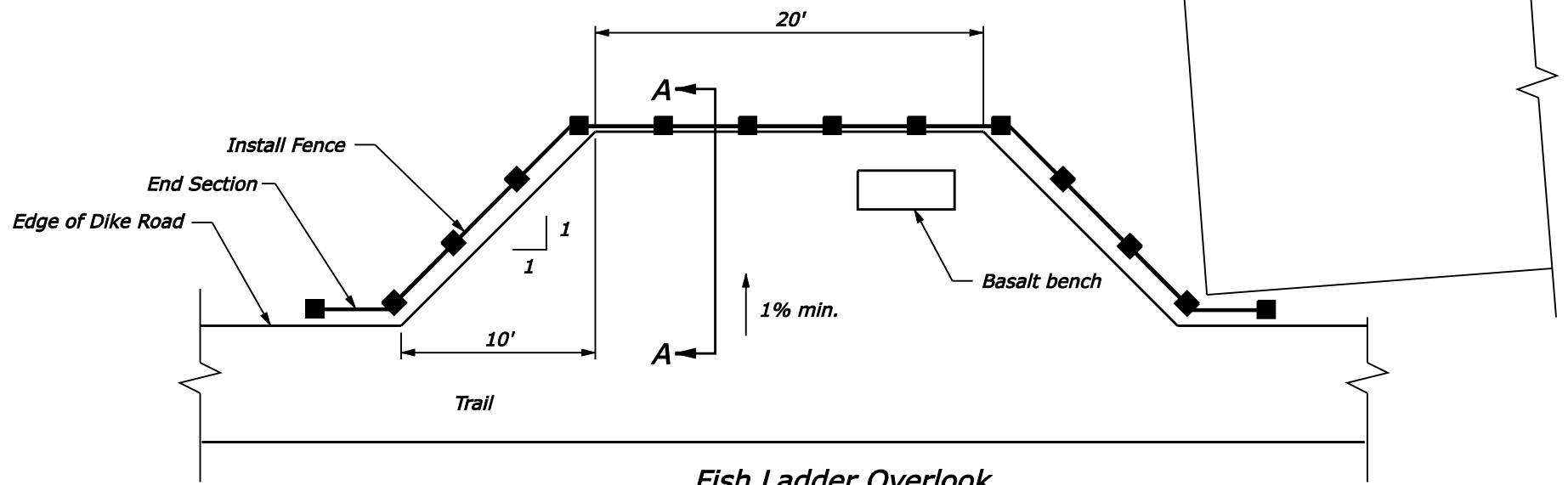
TRAIL TYPICAL SECTION

NO SCALE

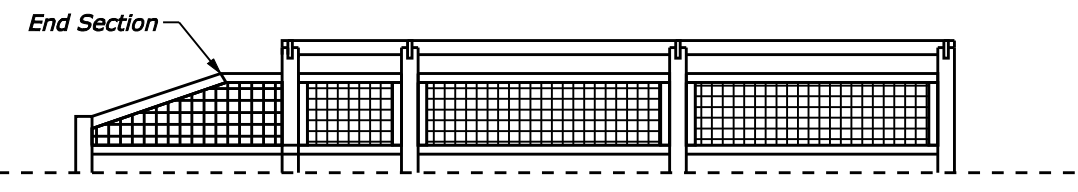
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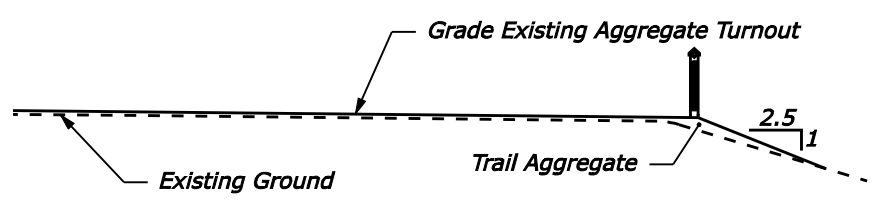
15+40
Trail Turnout #1



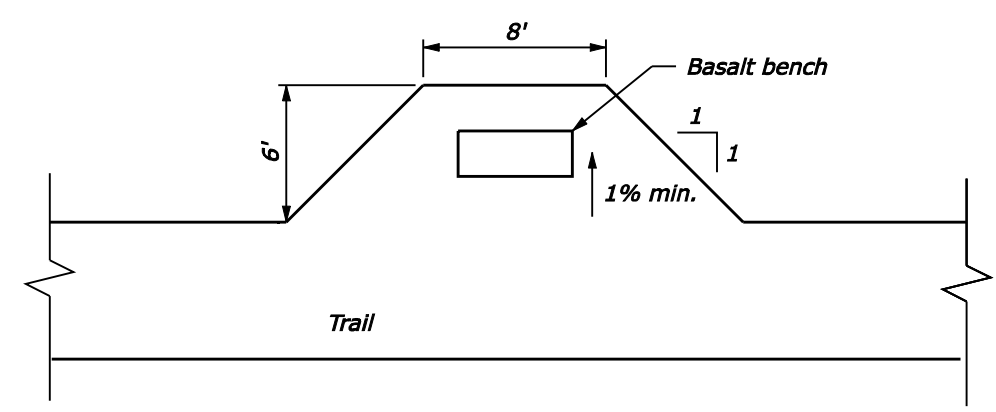
Fish Ladder Overlook
Alternative 1
(See sheet C.7 for design alternative 2)
85+00



Fence Detail
(Fencing shall match boardwalk railing.
See Sheet C.9 for material and dimension details)



Section A-A ²⁾



31+00 ¹⁾
Trail Turnout #2
50+20
Trail Turnout #3

NOTE:
1. See sheet C.1 for turnout locations.

FOOTNOTE:
¹⁾ Do not install basalt bench at this location.
²⁾ Extend trail turnout 1' beyond edge of existing trail turnout.

TRAIL TURNOUTS

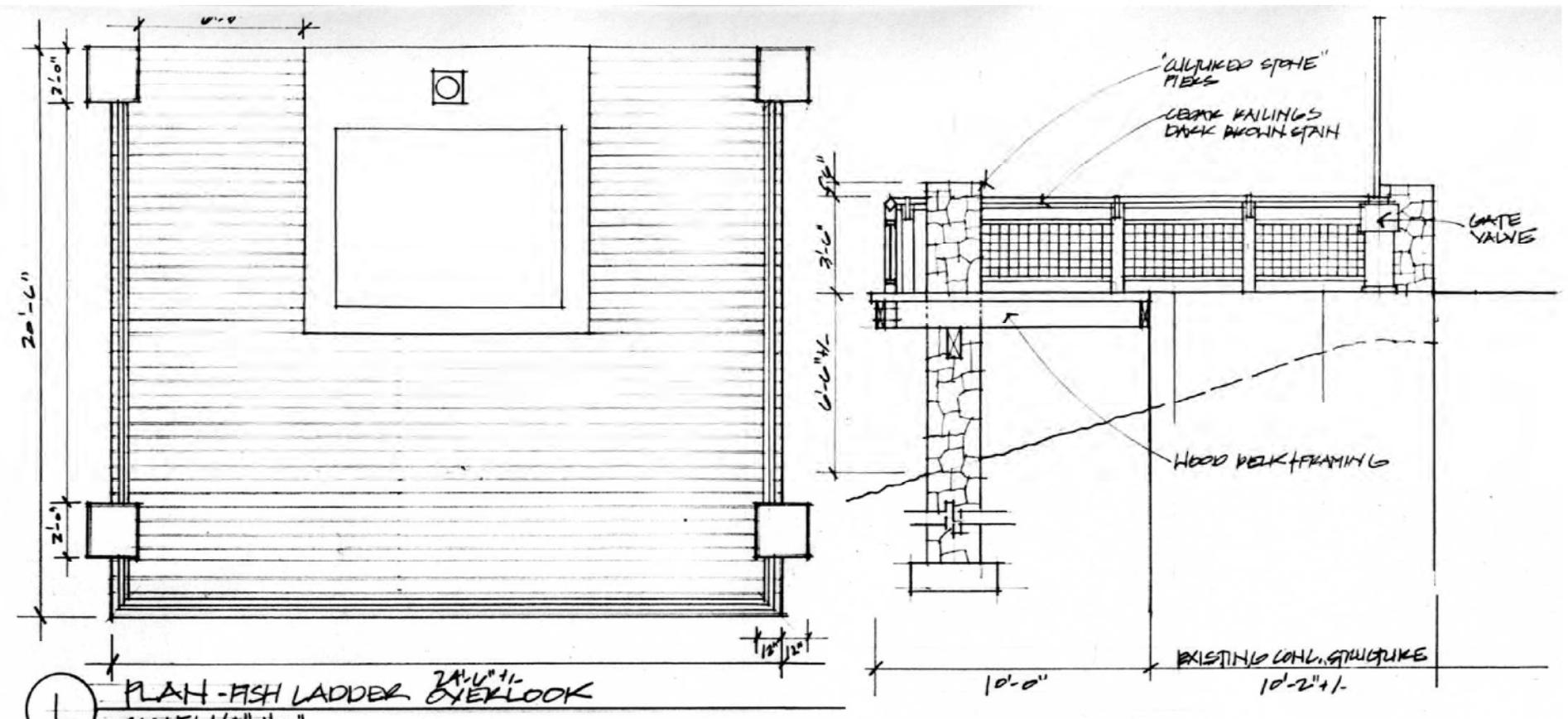
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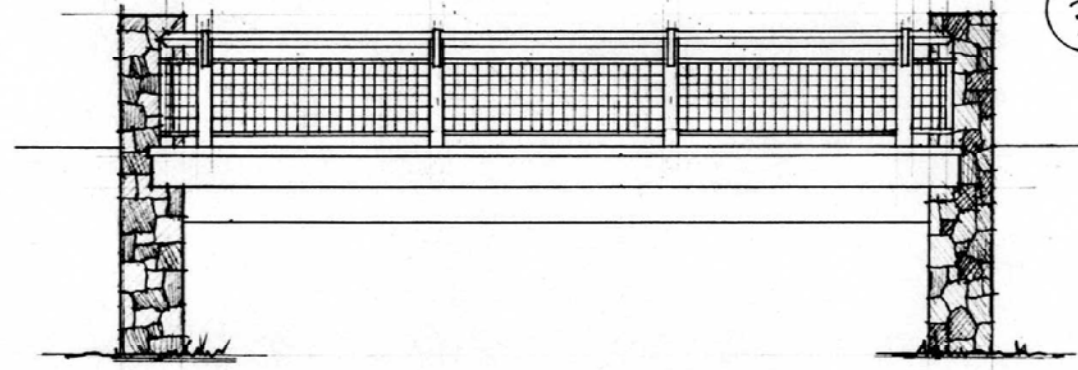
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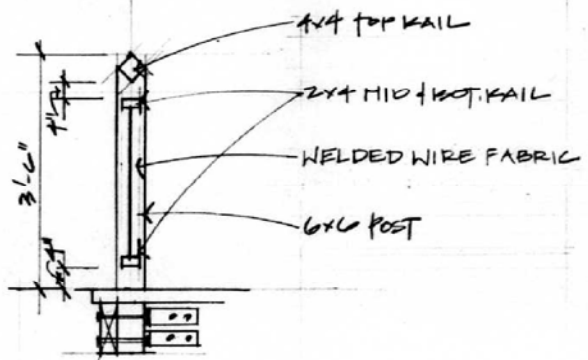


1 PLAN - FISH LADDER OVERLOOK
SCALE: 1/4" = 1'-0"

3 DECK SECTION
SCALE: 1/4" = 1'-0"



2 ELEVATION - FISH LADDER OVERLOOK
SCALE: 1/4" = 1'-0"



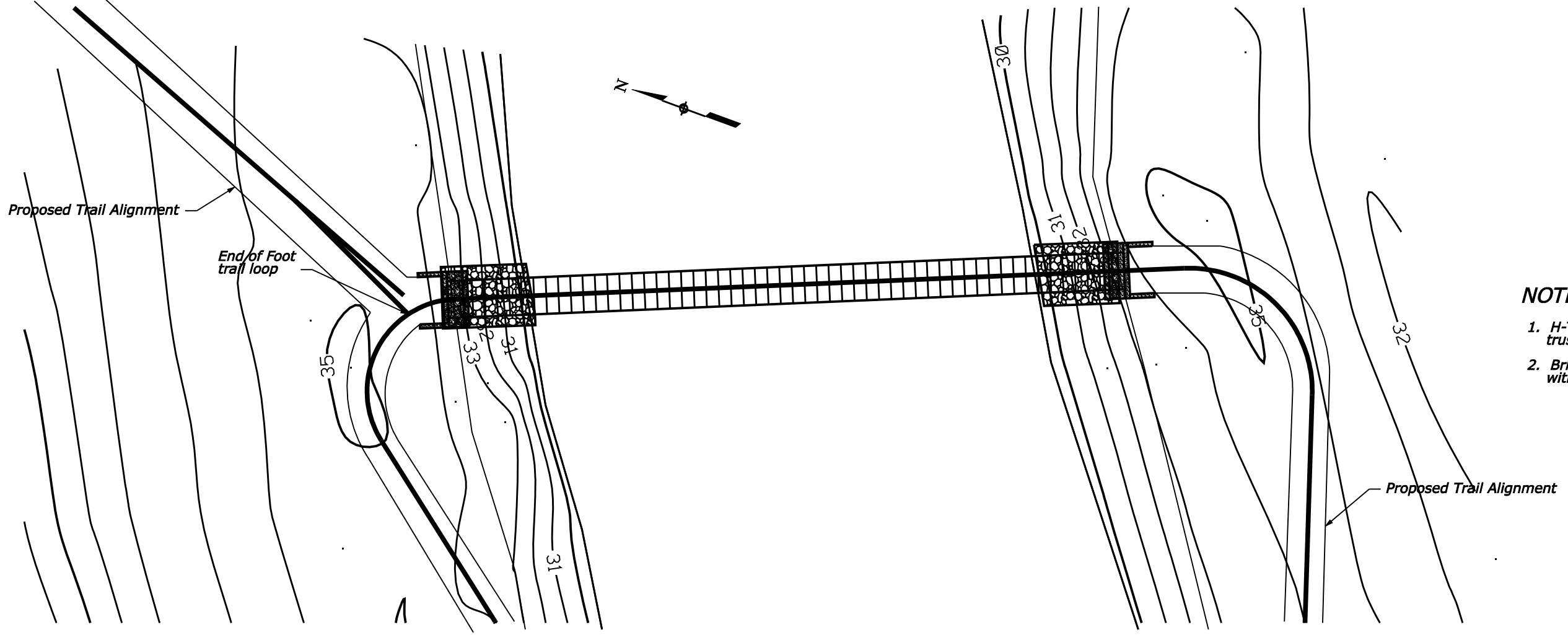
4 RAILING DETAIL
SCALE: 1/2" = 1'-0"



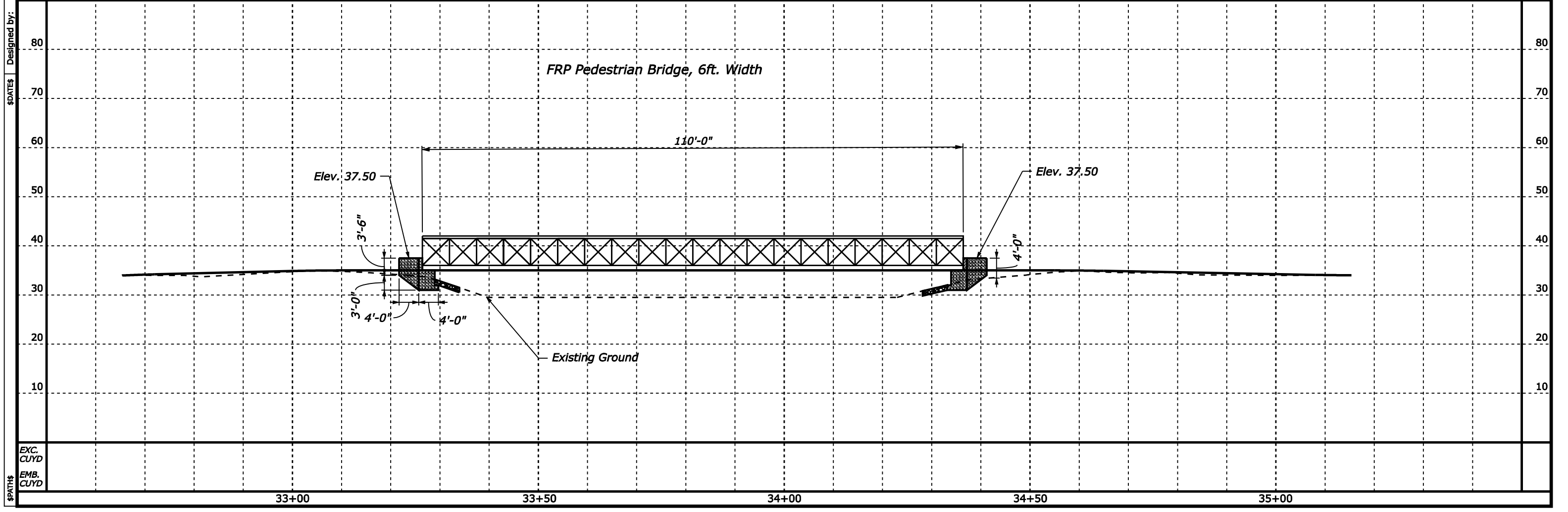
Support column simulated stone masonry veneer

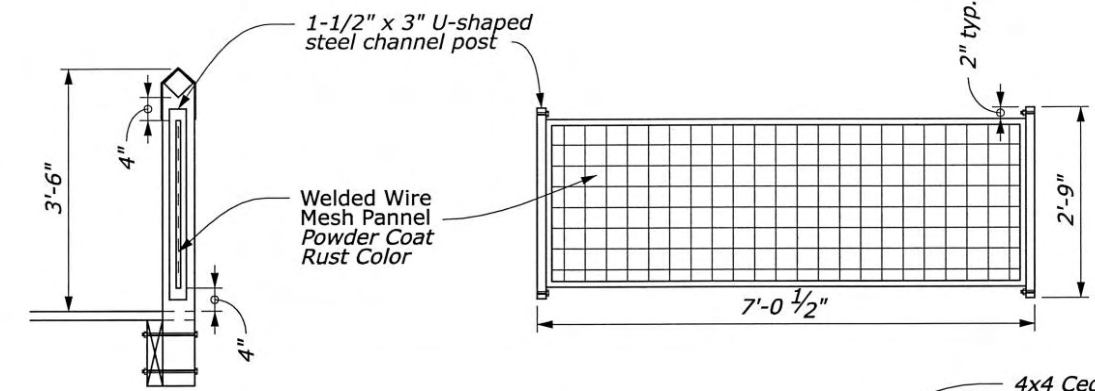
- NOTE:**
1. All lumber Treated Doug-Fir No. 1
 2. All exposed hardware powder coated rust color.

ALTERNATIVE 2 FISH LADDER OVERLOOK DESIGN

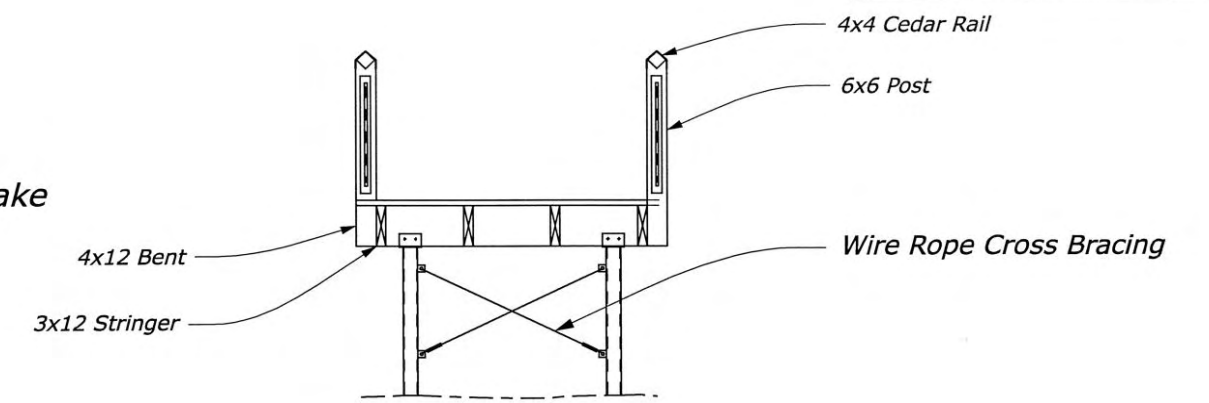


- NOTE:**
1. H-Truss Bridge, handrail height is 42", truss extends 2.5' below deck.
 2. Bridge shall be dark brown in color with wood deck planking.

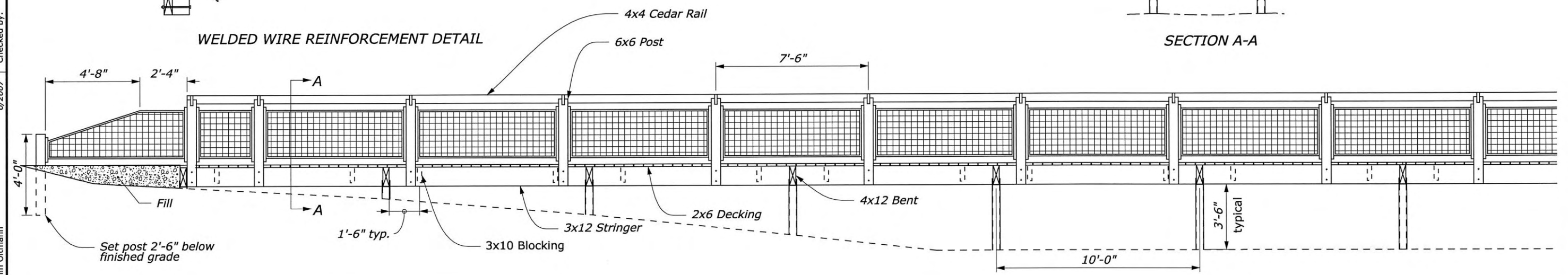




Boardwalk at Redtail Lake
300 ft. in length

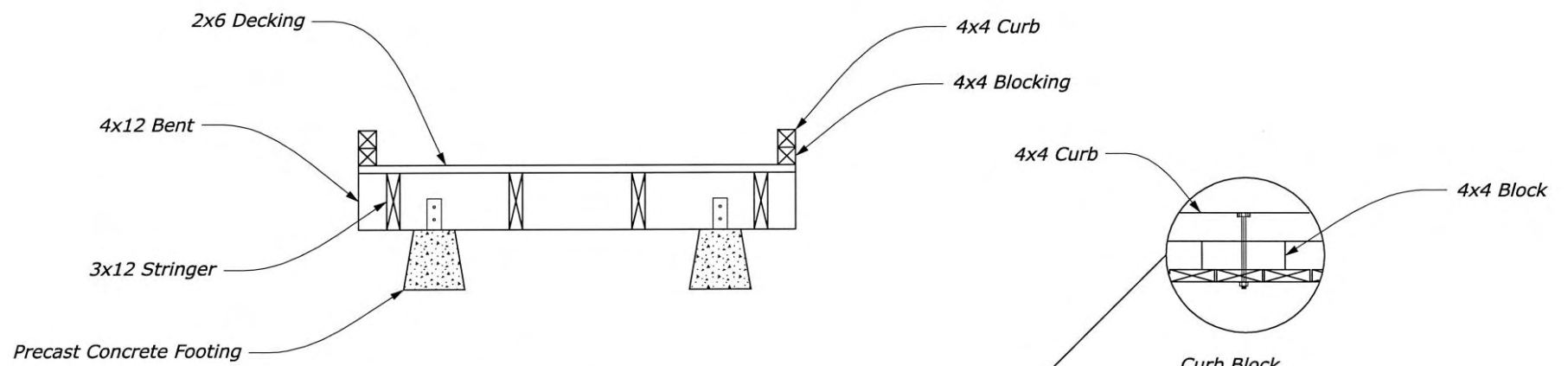


SECTION A-A

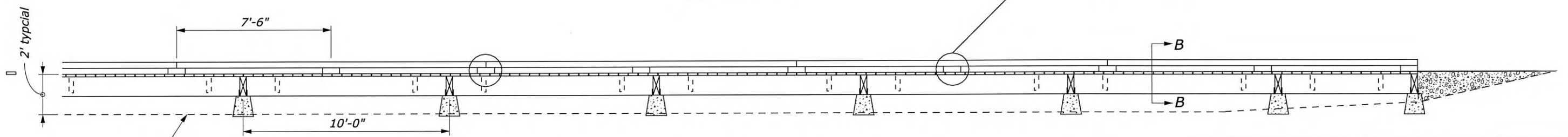


NOTE:

1. All lumber Treated Doug-Fir No. 1, unless noted.
2. All exposed lumber shall be stained dark brown (Olympic Brand Coffee color solid stain or equivalent??)
3. Provide 1/4" spacing between deck members



SECTION B-B



Boardwalk through the willows
150 ft. in length

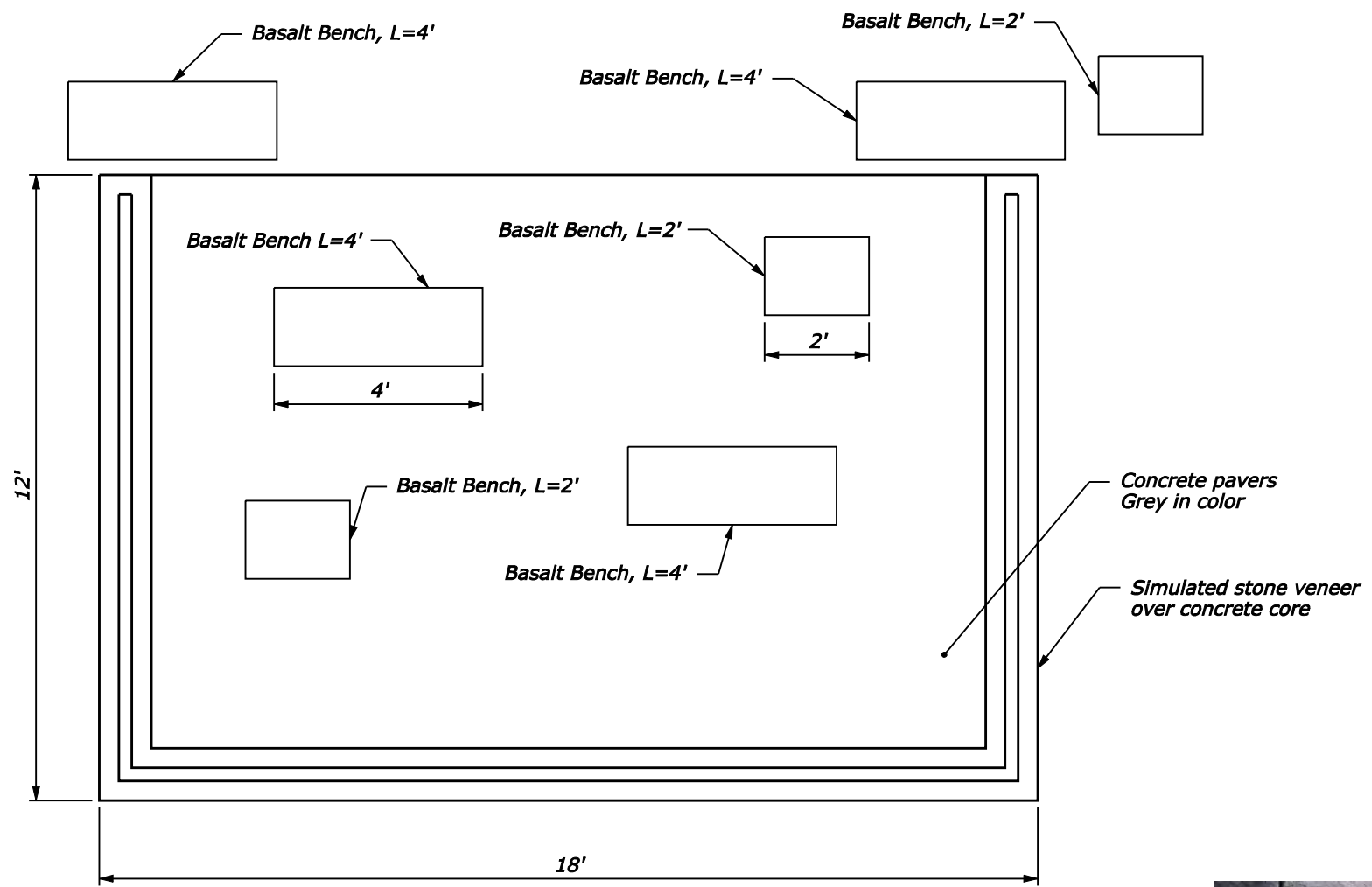
BOARDWALK DETAIL

6/2007 Checked by: Benjamin Oltmann
 23-OCT-2007 3:50PM Designed by: Benjamin Oltmann
 F:\Washington\RRP STEI 10(1) Stelgerwald\Structures\WSE\gorge bw plan sht.dgn [US_int2D]

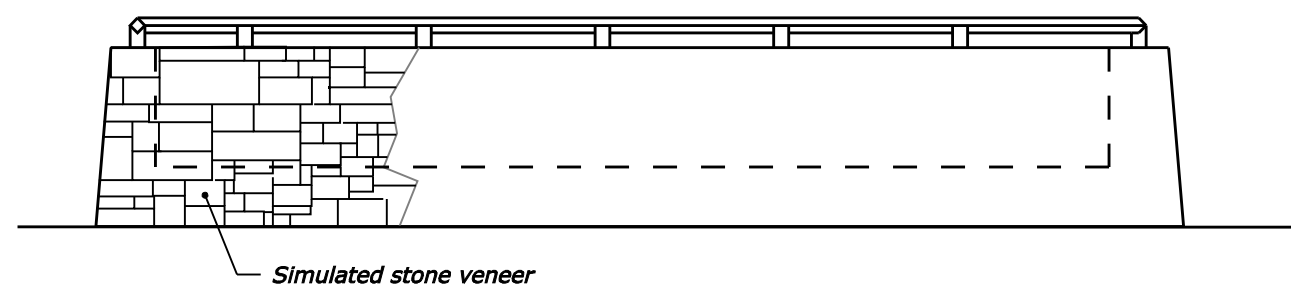
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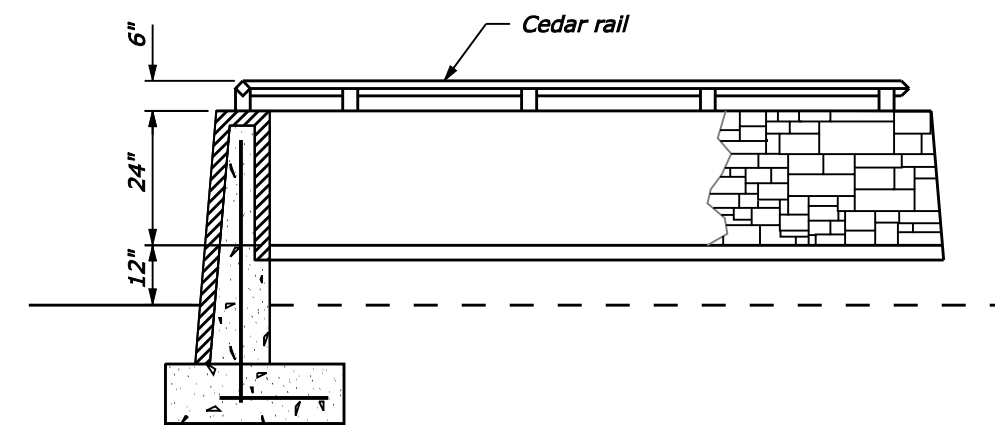
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OVERLOOK PLAN



OVERLOOK ELEVATION



OVERLOOK SECTION



Simulated Stone Veneer

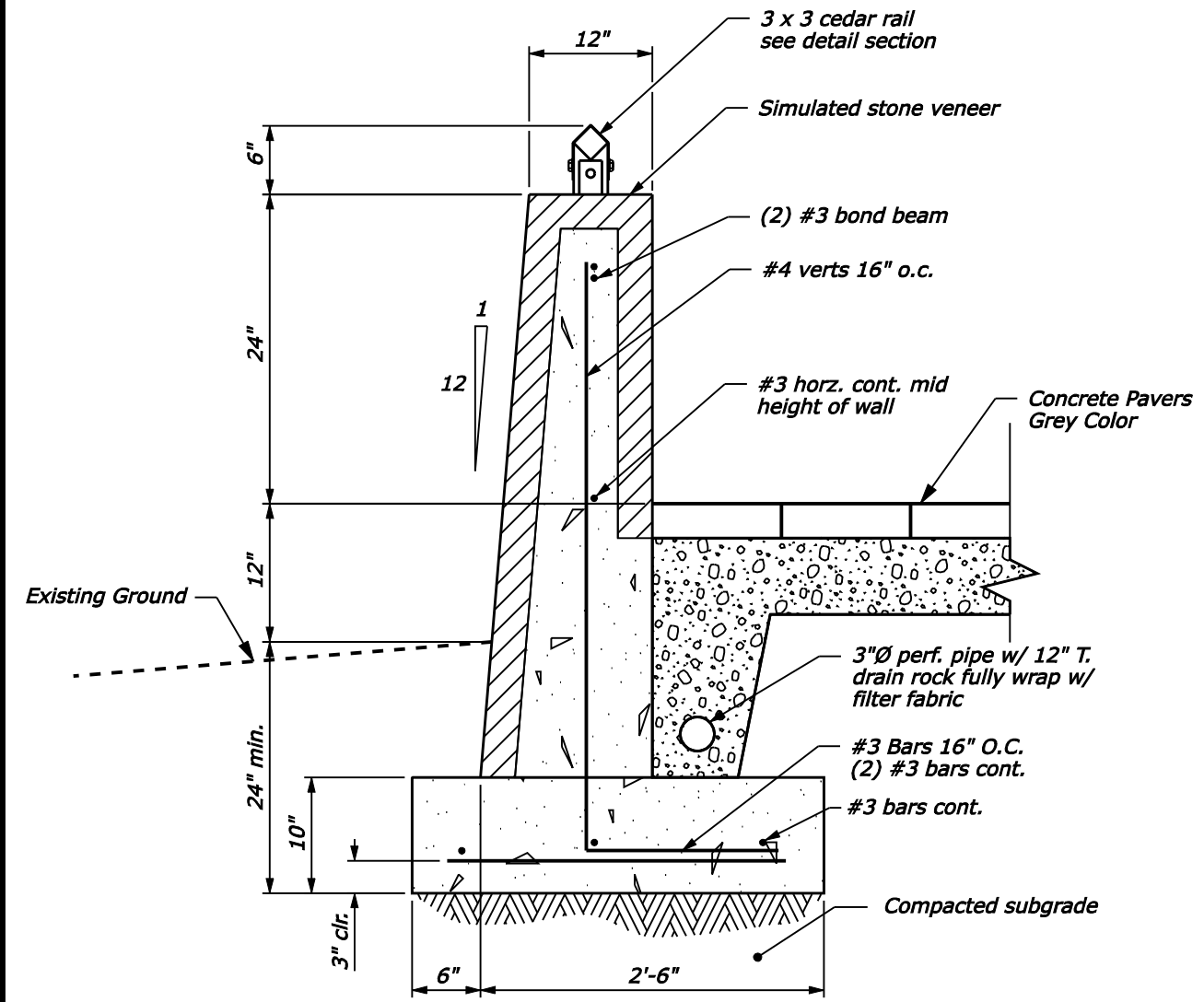
Note:

1. Bench location shown on detail is approximate. Final location and orientation of benches to be marked in the field by the CO.

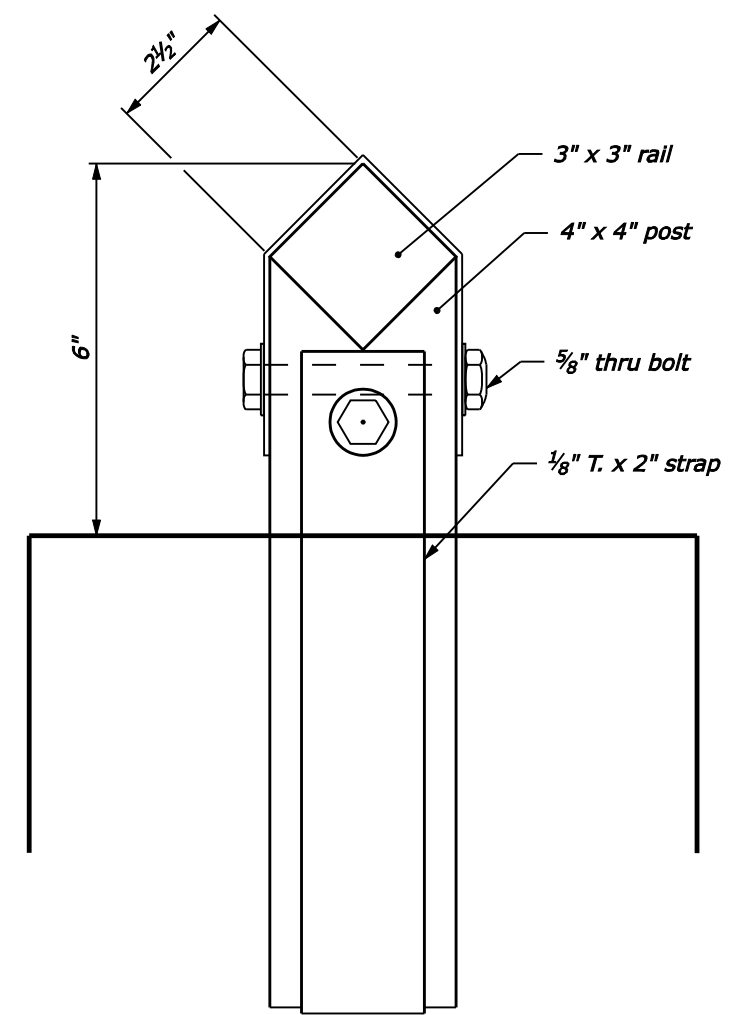
NO SCALE

**REFUGE OVERLOOK
DETAIL 1 of 2**

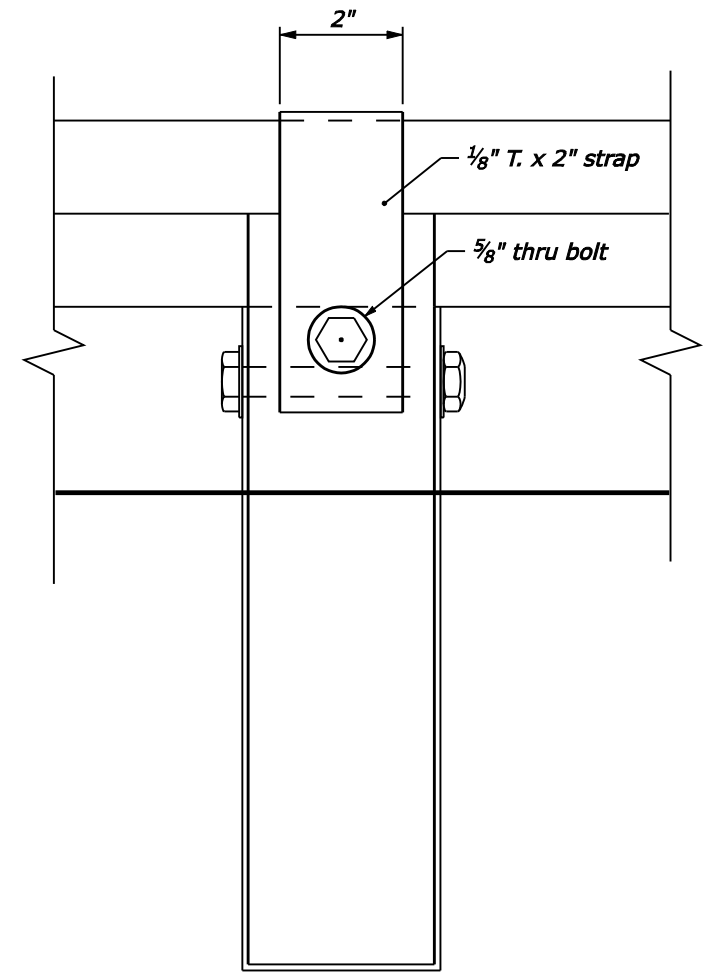
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OVERLOOK WALL SECTION



CEDAR RAIL

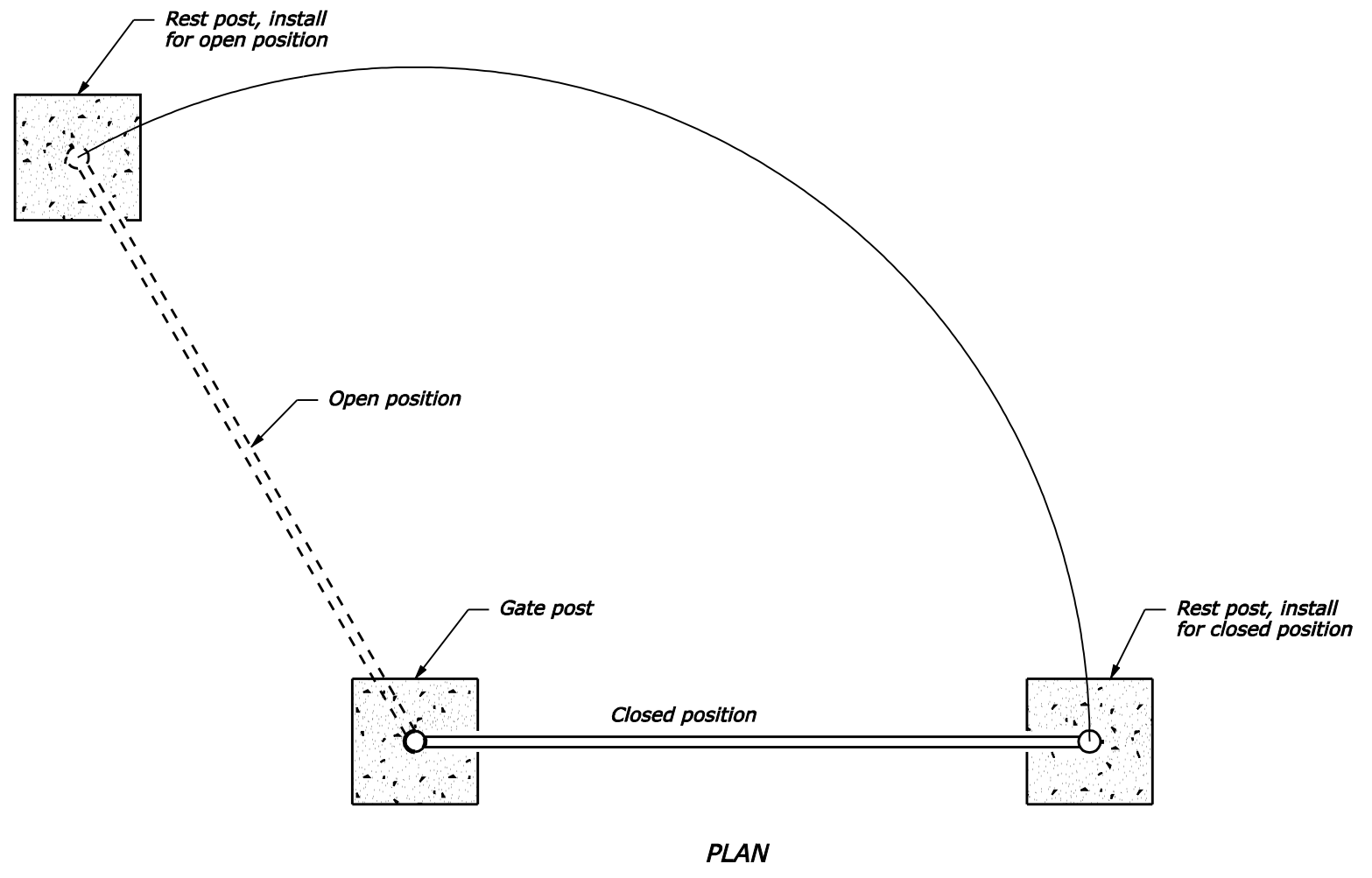
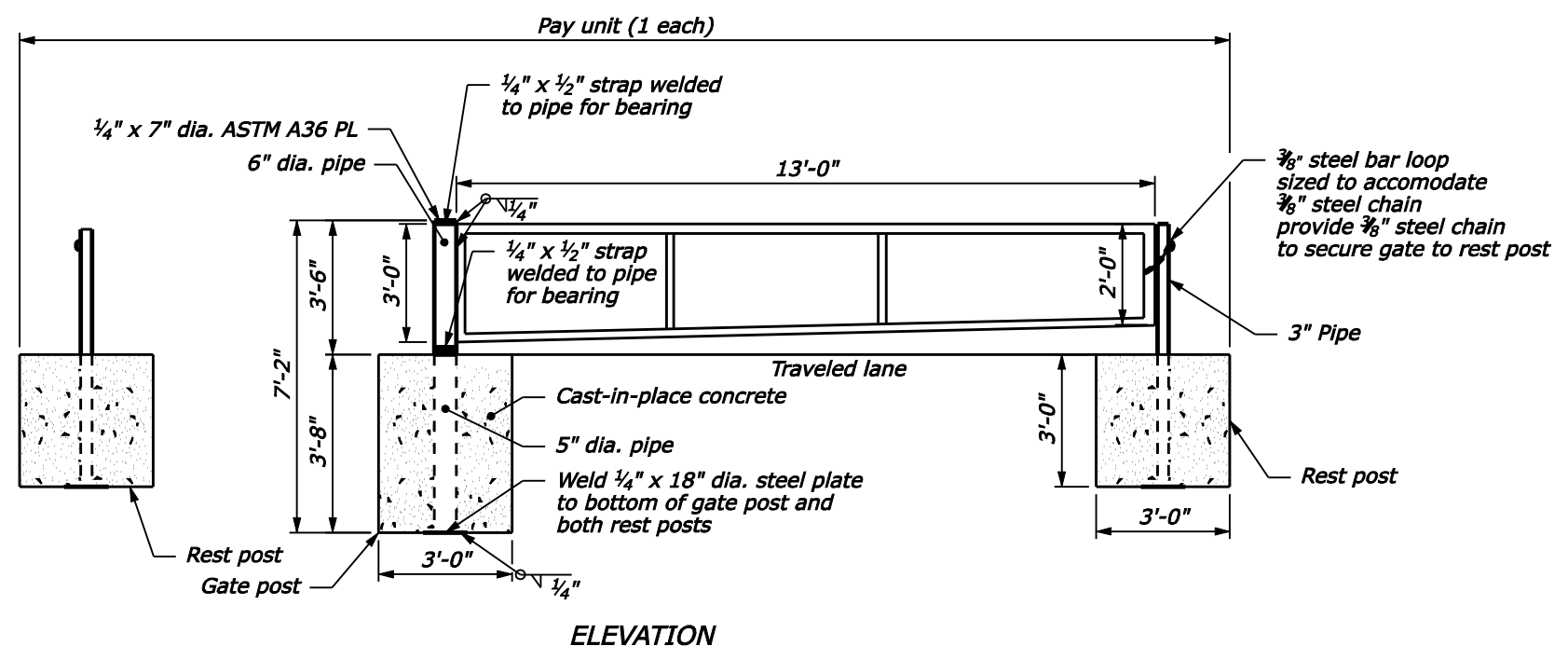


NOTE:
1. Powder coat all hardware rust color.

**REFUGE OVERLOOK
DETAIL 2 of 2**

NO SCALE

\$PATH\$



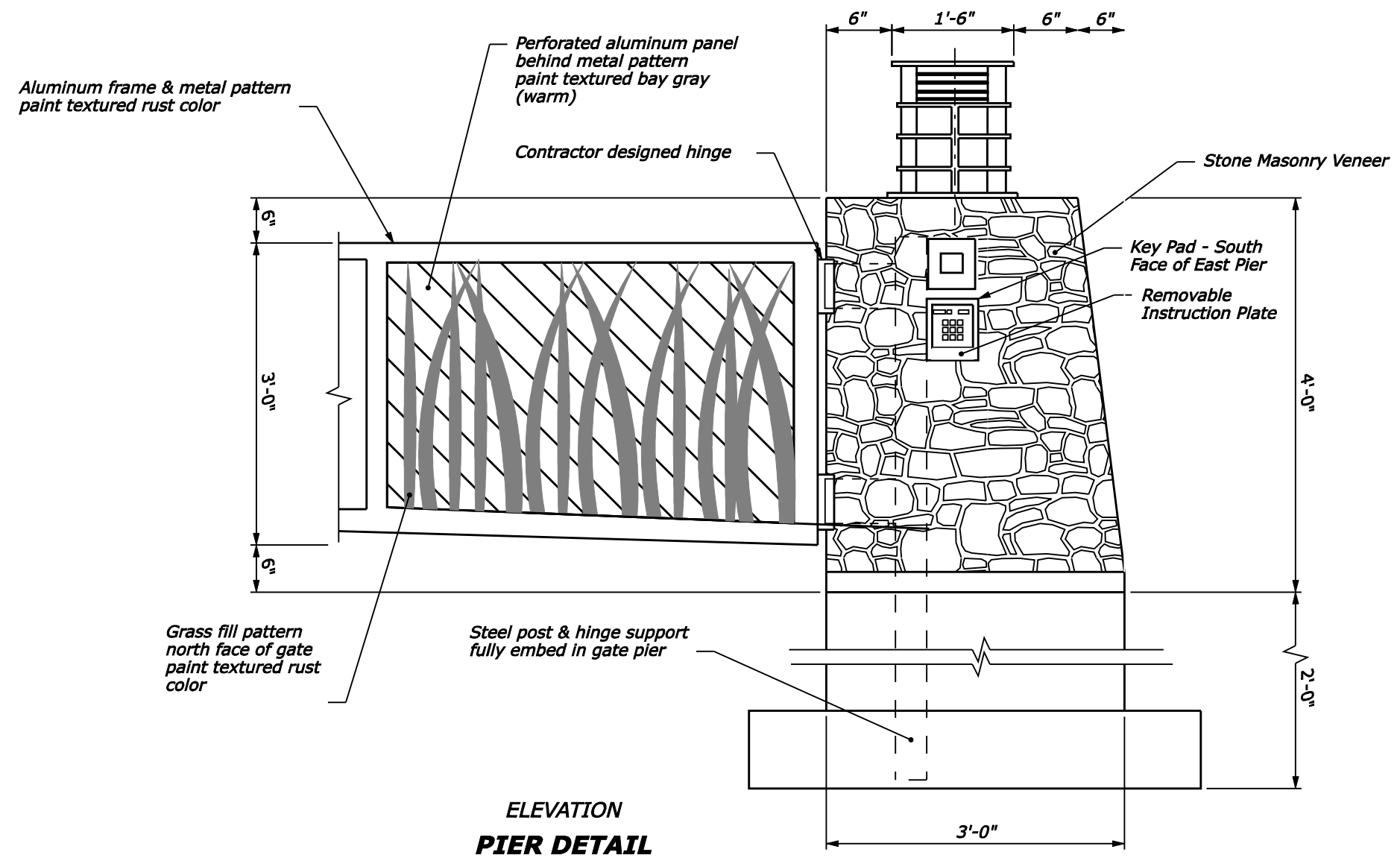
NOTE:

1. Use pipe that meets requirements of ASTM A53 grade B.
2. Pipe sizes shown are for standard weight black iron pipe (Sch. 40).
3. Shop paint the gate and all fittings textured rust color. Repaint any damage to the paint in the field as directed by the CO. Prepare surface and prime as recommended by the paint manufacturer.
4. Place concrete in accordance with Section 601 of the FP-03.
5. Fill over excavated post holes with concrete.
6. The CO, in conjunction with the NWR, will inspect the gate and locking mechanism prior to installation.
7. Gate will be located in the field by the CO.

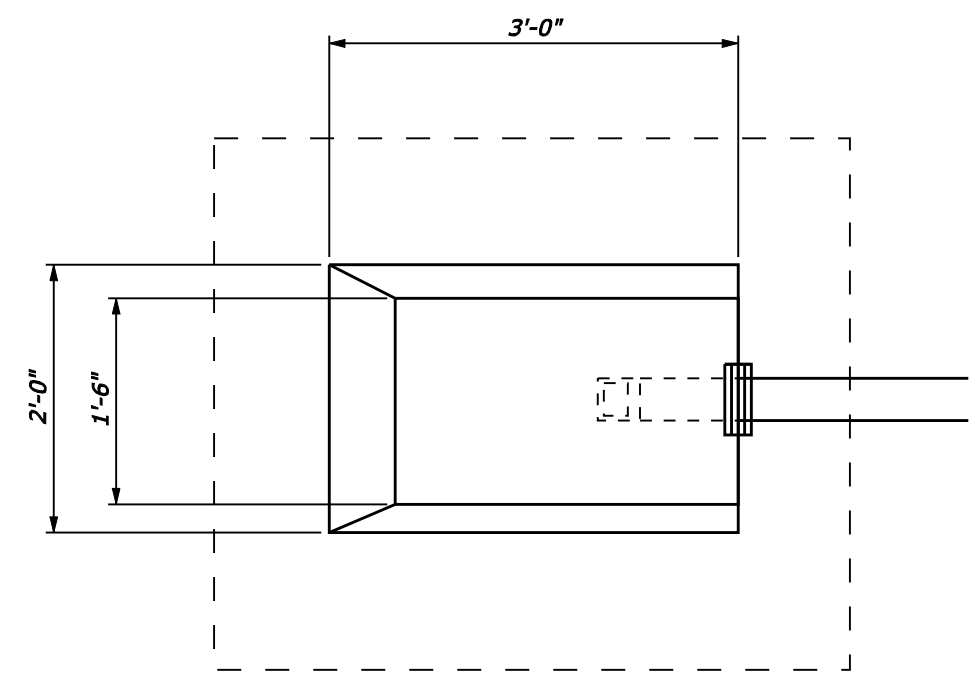
ROAD CLOSURE GATE

NO SCALE

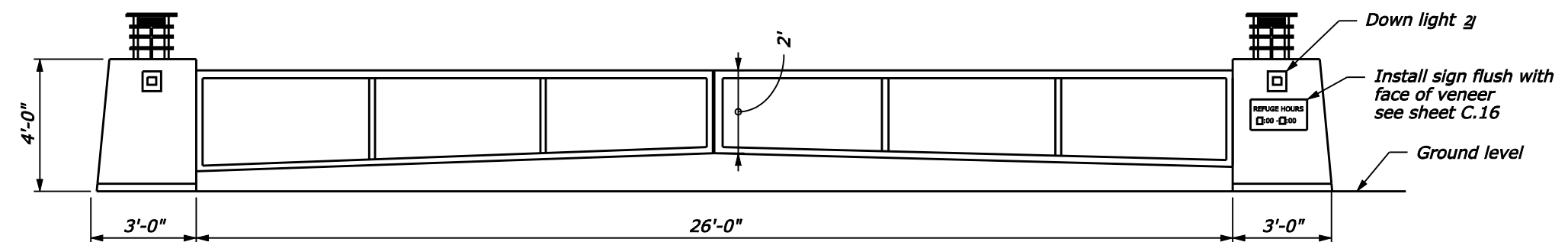
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**ELEVATION
PIER DETAIL**



PIER PLAN



ENTRY GATE

NOTE:

1. Place brown reflective engineering tape for night time visibility at locations on the gate directed by the CO.

FOOTNOTE:

- 1] Install removable aluminum plate 3" tall x width of key pad to allow engraving of user instructions at a later date.
- 2] Install down light on the north side of both piers and on the south side of the east pier.

**ENTRANCE GATE
DETAIL 1 of 3**

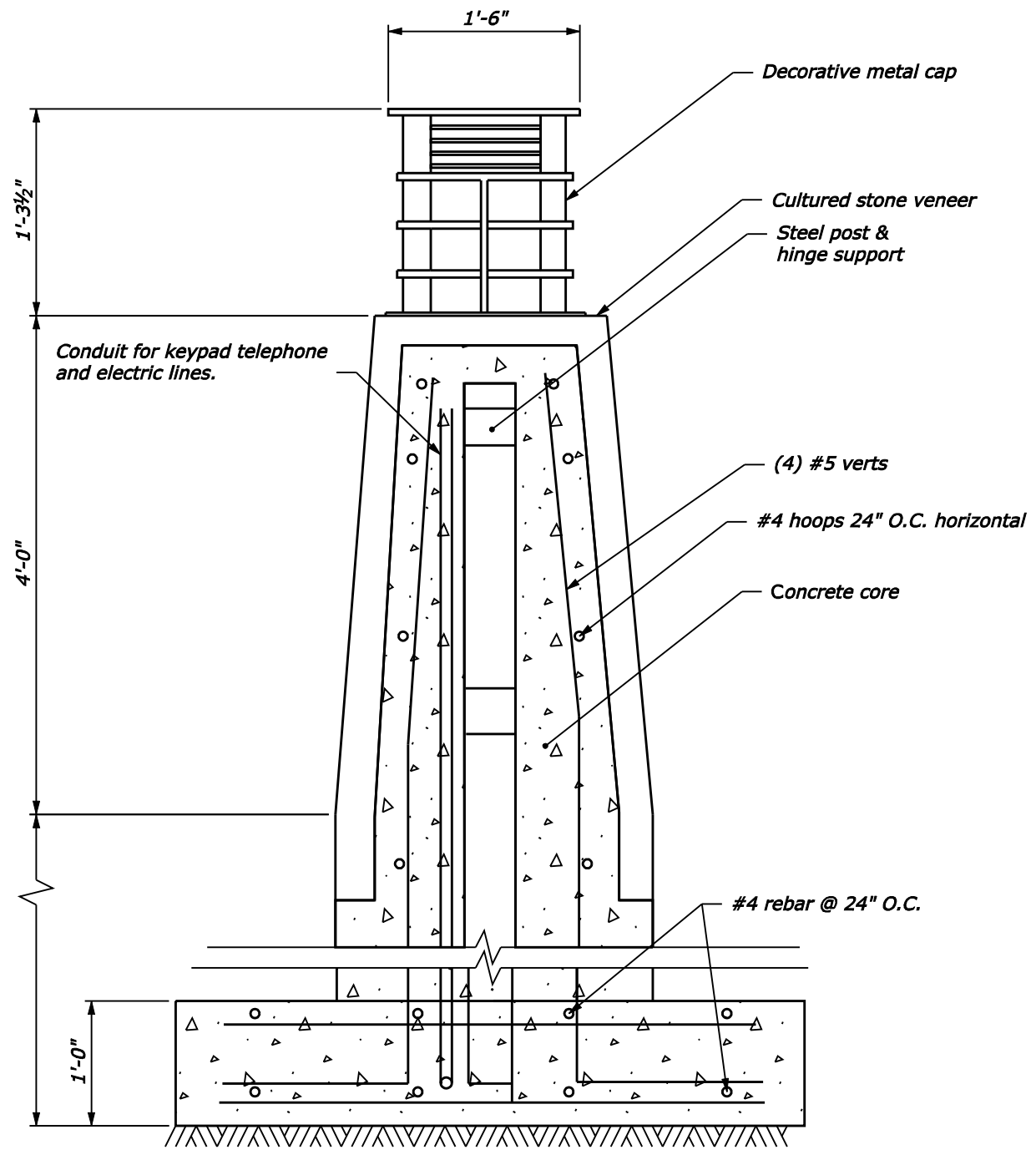
NO SCALE

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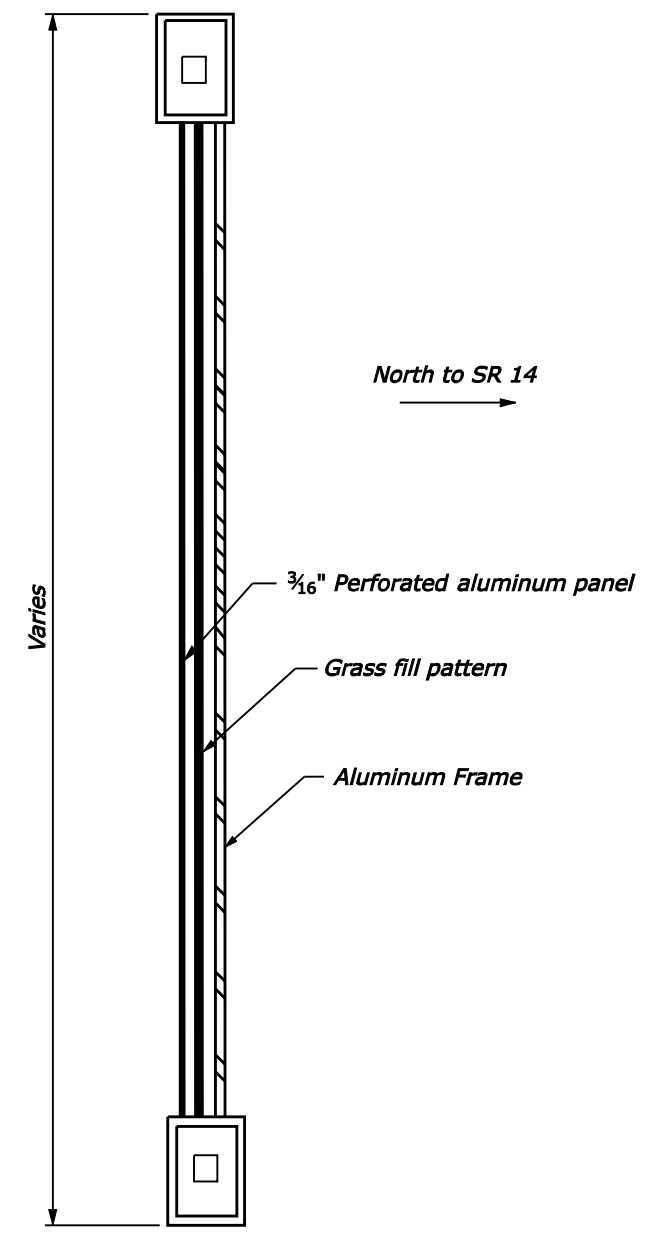
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SECTION THRU PIER



SECTION THRU GATE

NO SCALE

**ENTRANCE GATE
DETAIL 2 of 3**

Checked by:

Designed by:

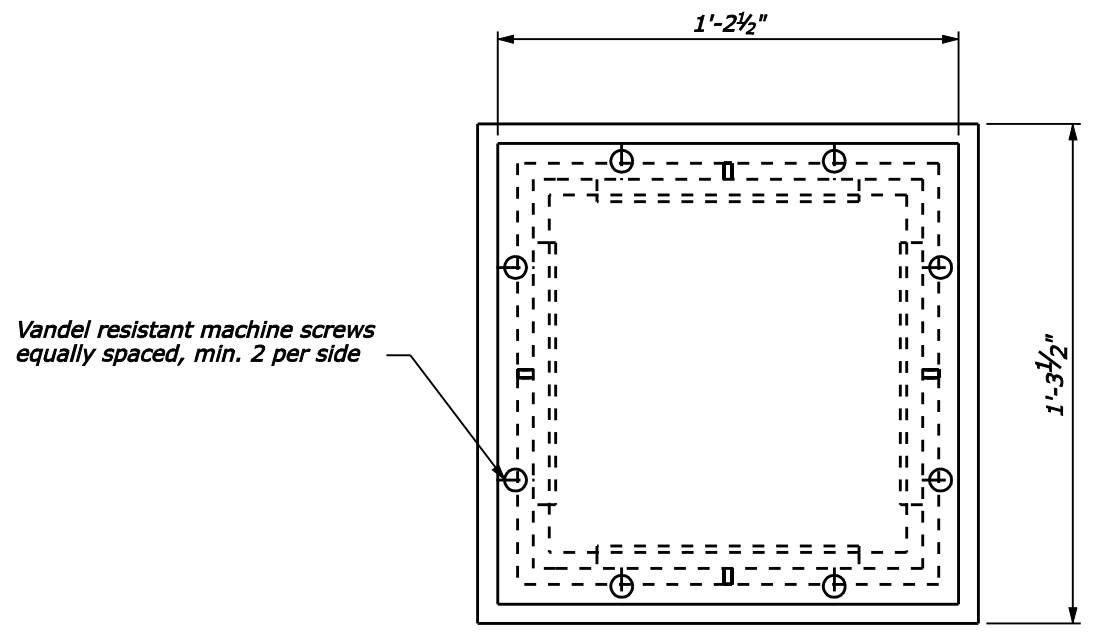
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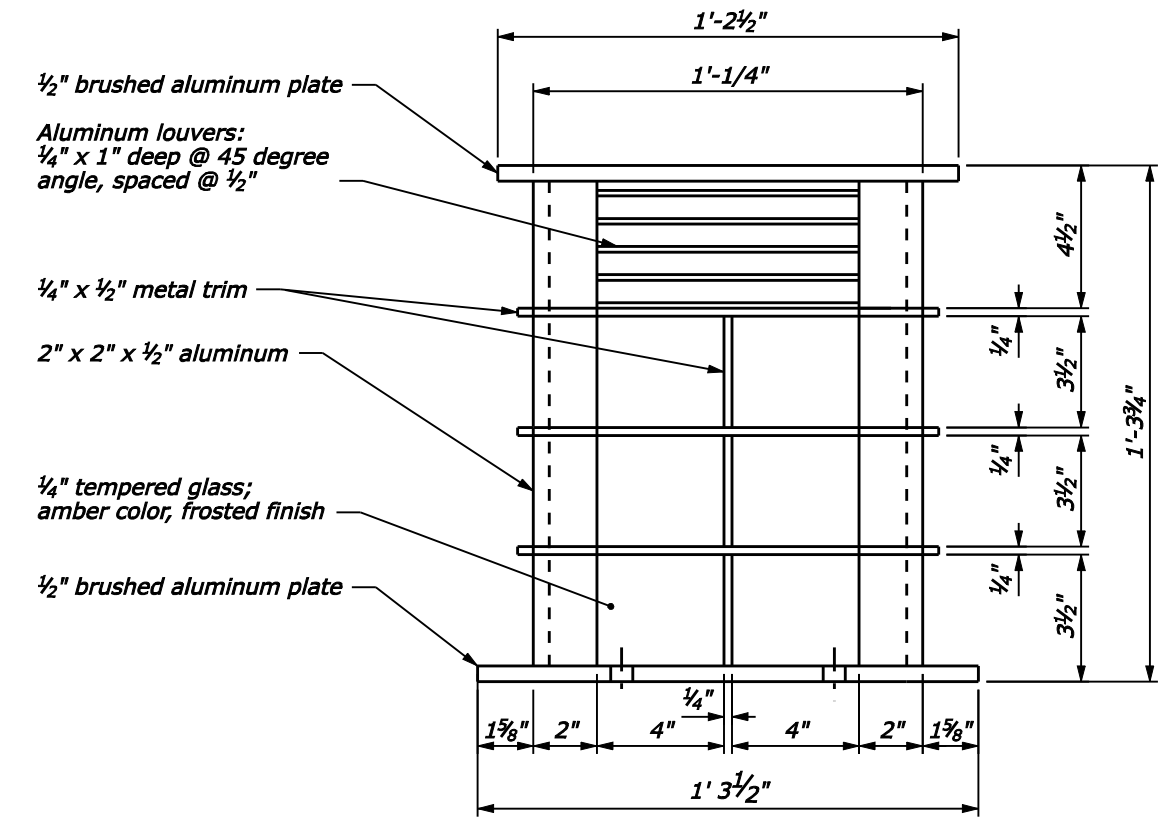
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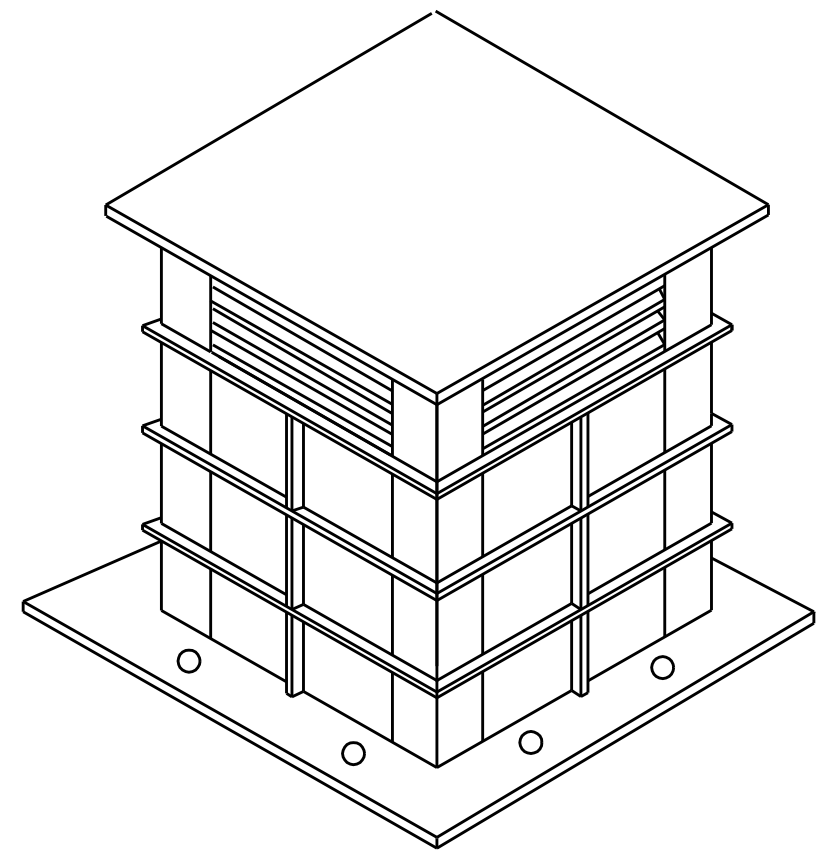
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TOP VIEW



SIDE VIEW



ISOMETRIC VIEW

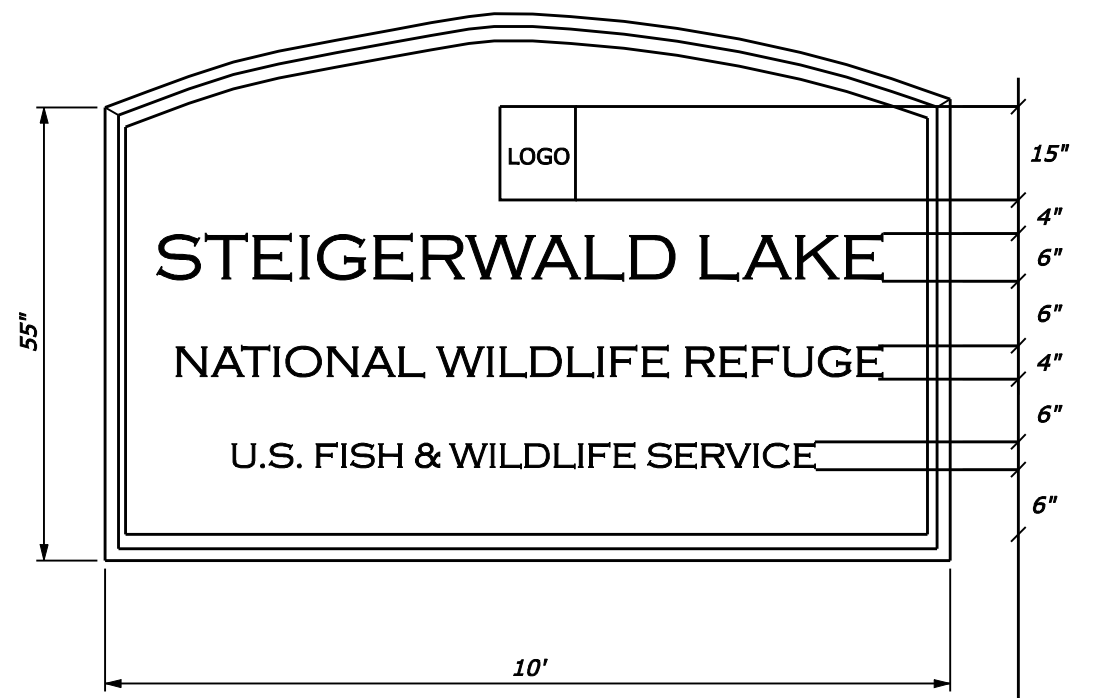
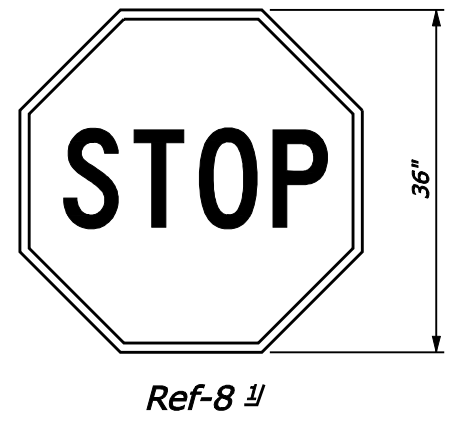
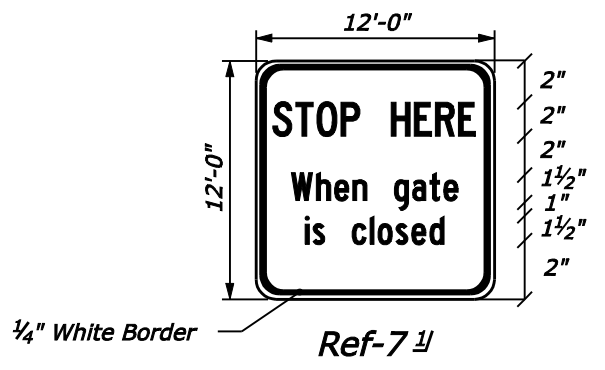
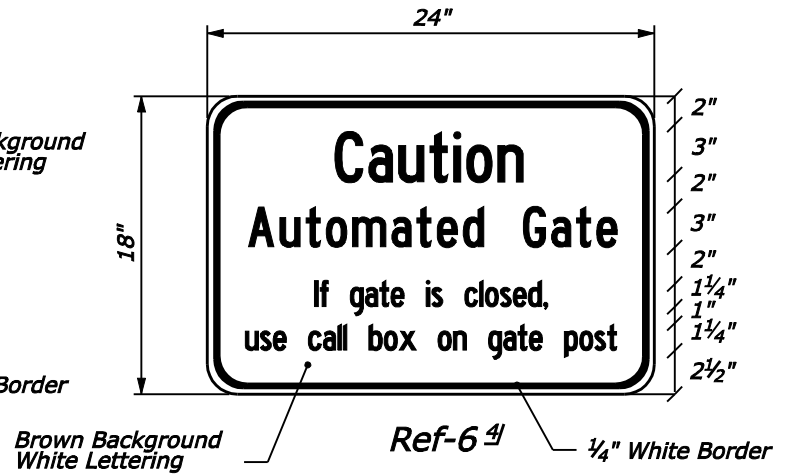
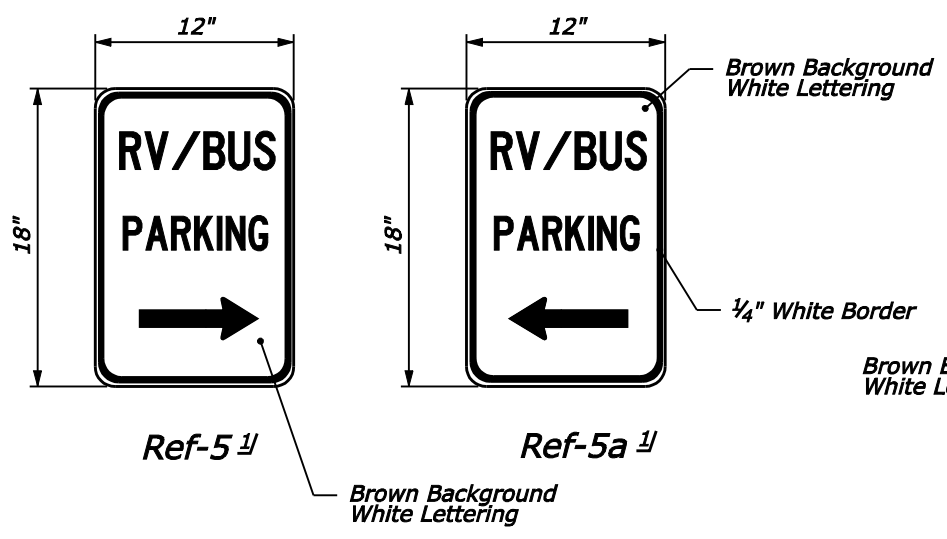
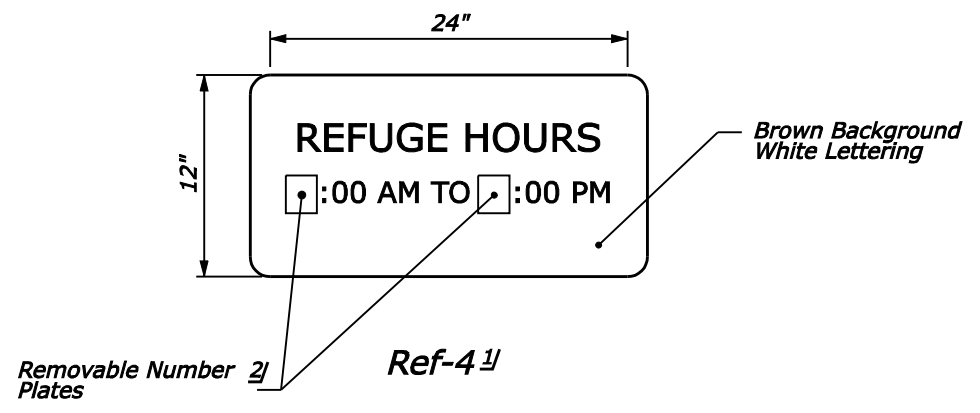
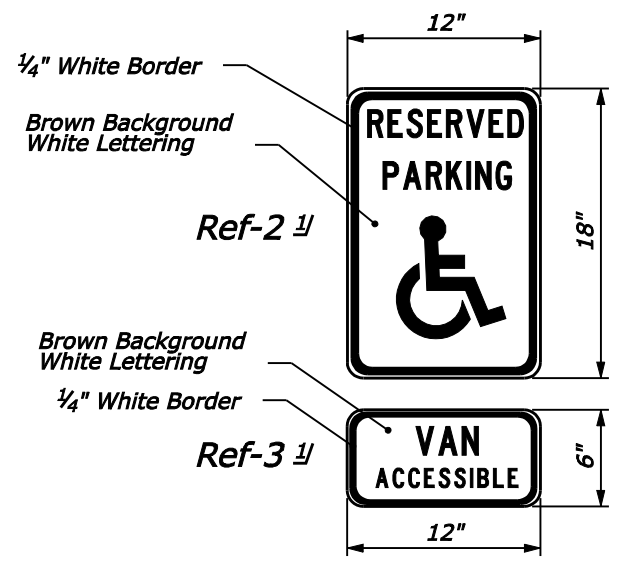
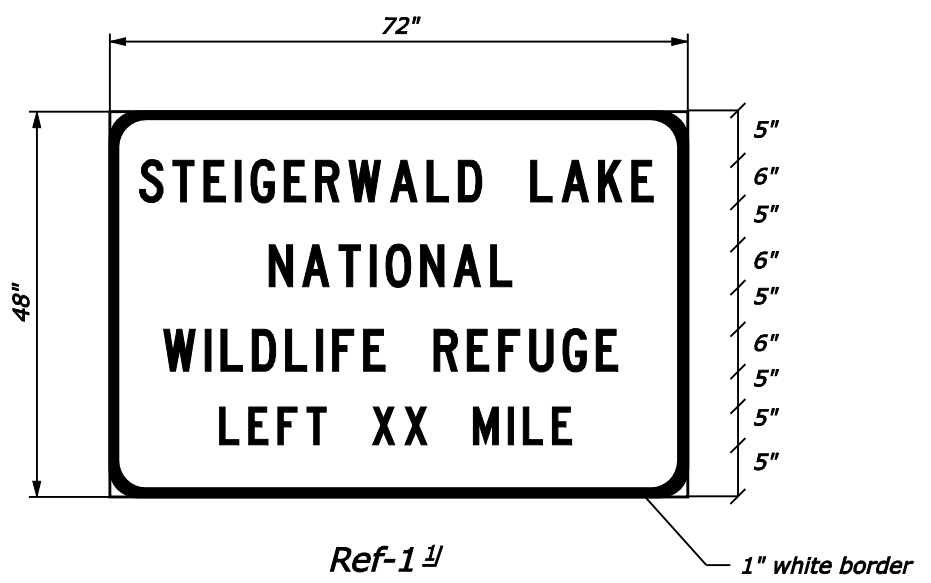
NOTE:

1. Paint the vertical supports on the corners of the light, dark brown. Paint all other metal parts textured rust color.

NO SCALE

**ENTRANCE GATE
DETAIL 3 of 3**

\$DATE\$
 Designed by:
 M. Baron
 Checked by:
 K. Austin



FOOTNOTE:

- 1/2 Paint Back of Sign Brown
- 2/2 Provide two of the following removable number plates: 5, 6, 7, 8, 9. Plates paid for under 63302.
- 3/2 Paint all sign posts within the refuge brown
- 4/2 Attach sign to the south side of the east entrance gate leaf.

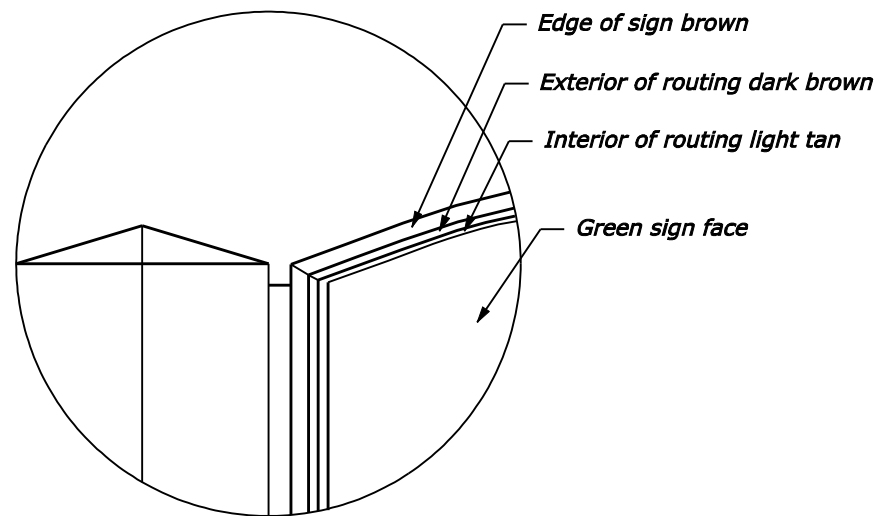
NOTE:

1. See Sheet E.2 for sign locations.

No Scale

SIGN DETAILS

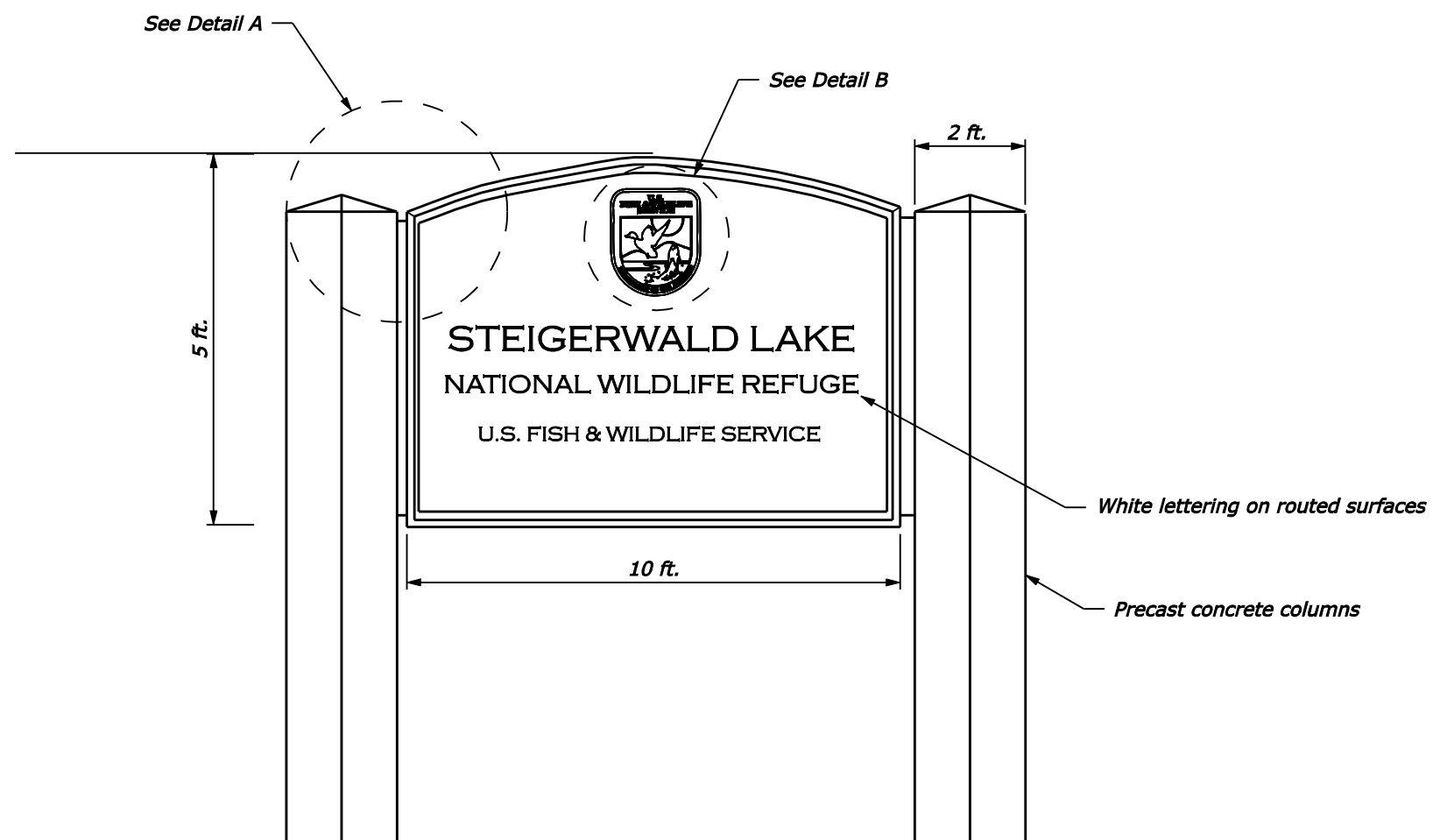
STATE	PROJECT	SHEET NUMBER
WA	RRP STEI 10(1)	C.17



Detail A



Detail B



ENTRANCE SIGN

NO SCALE

Checked by:

Designed by:

\$PATH\$



Siding - Mt. St. Helens limestone simulated stone masonry veneer.

NOTE:

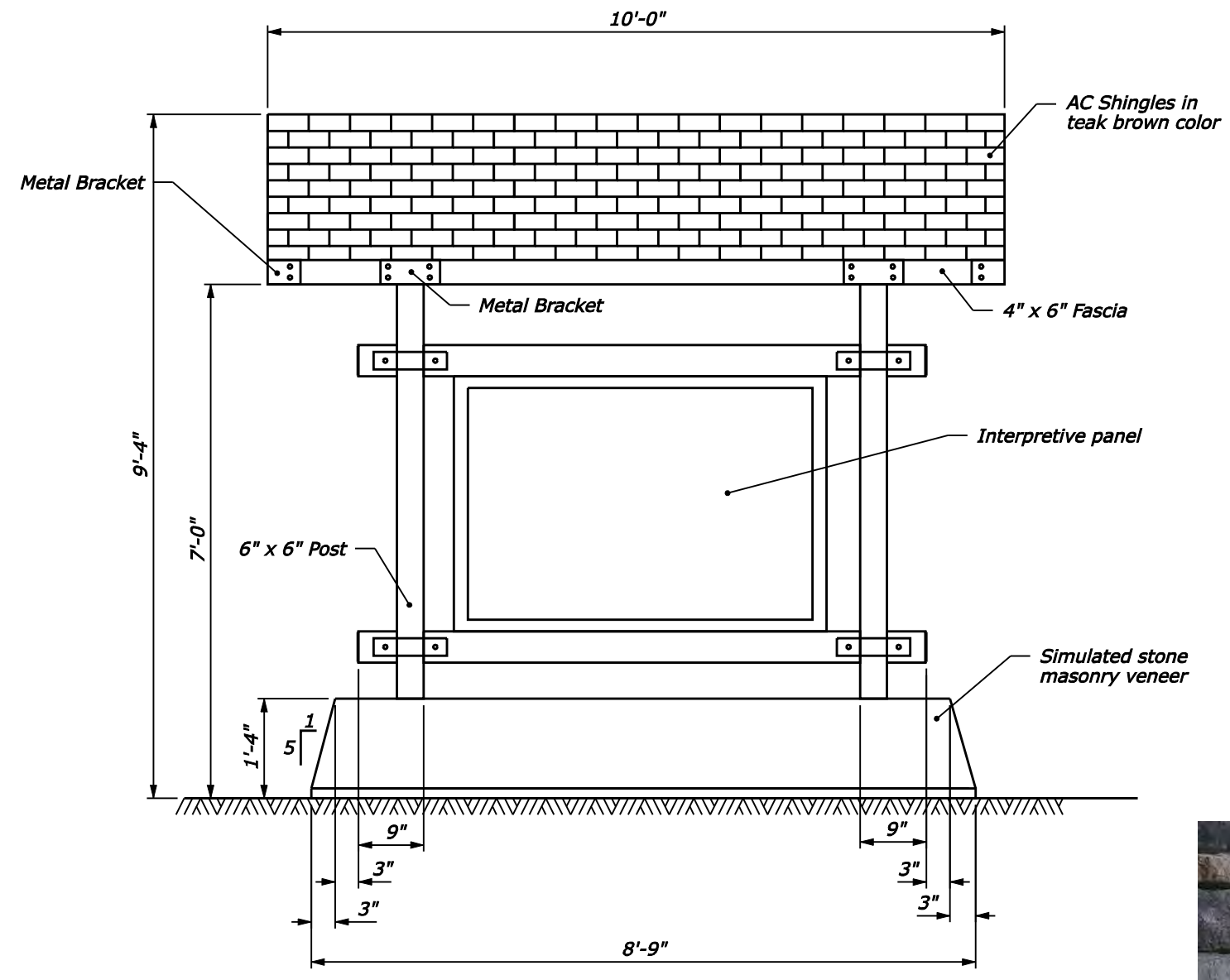
1. Color and material of proposed structure will differ from photos as noted.
2. Concrete roof panels - cedar shake texture in java brown color.

VAULT TOILET

Checked by:

Designed by:

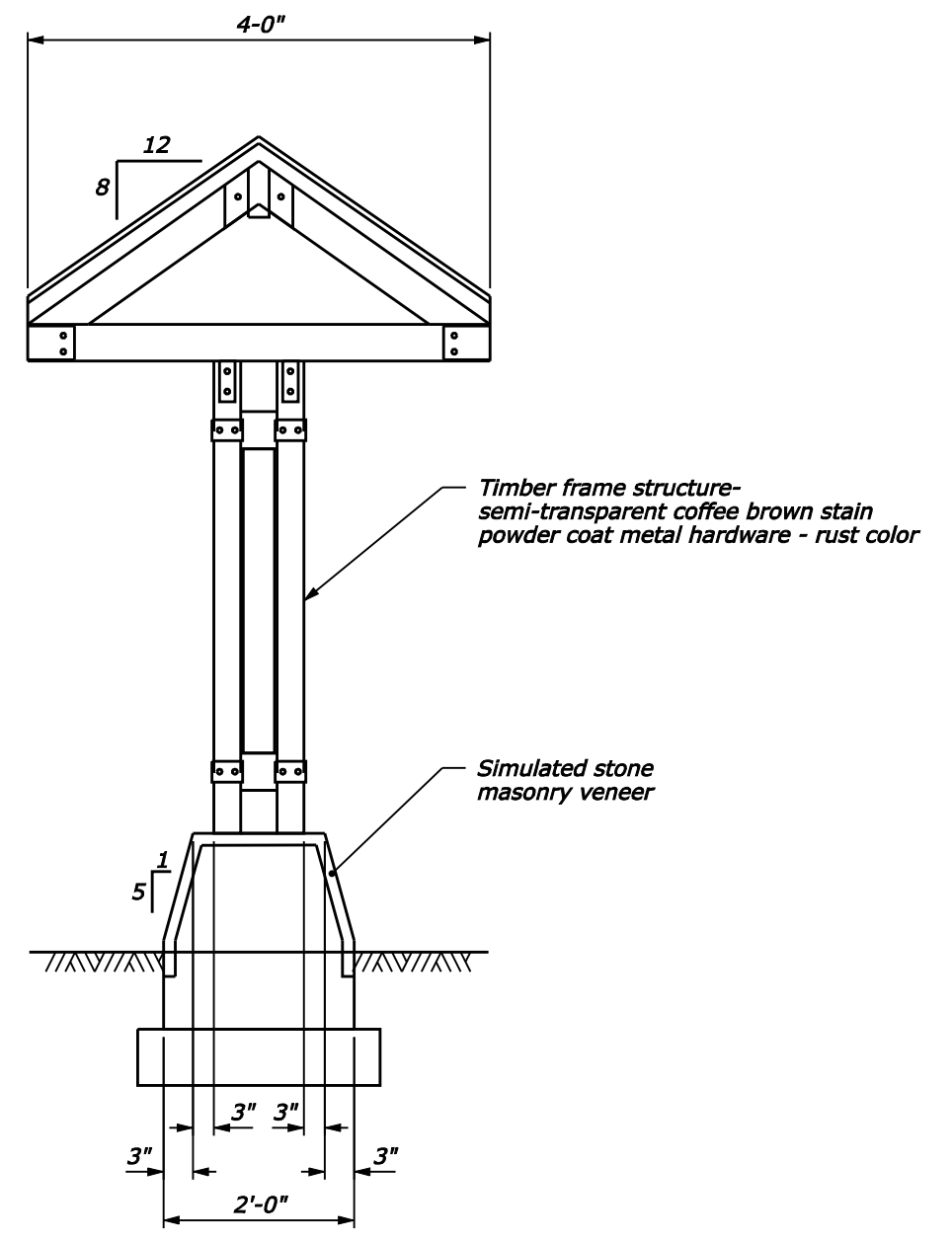
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**ELEVATION
FRONT**



*Simulated Stone
Masonry Veneer*



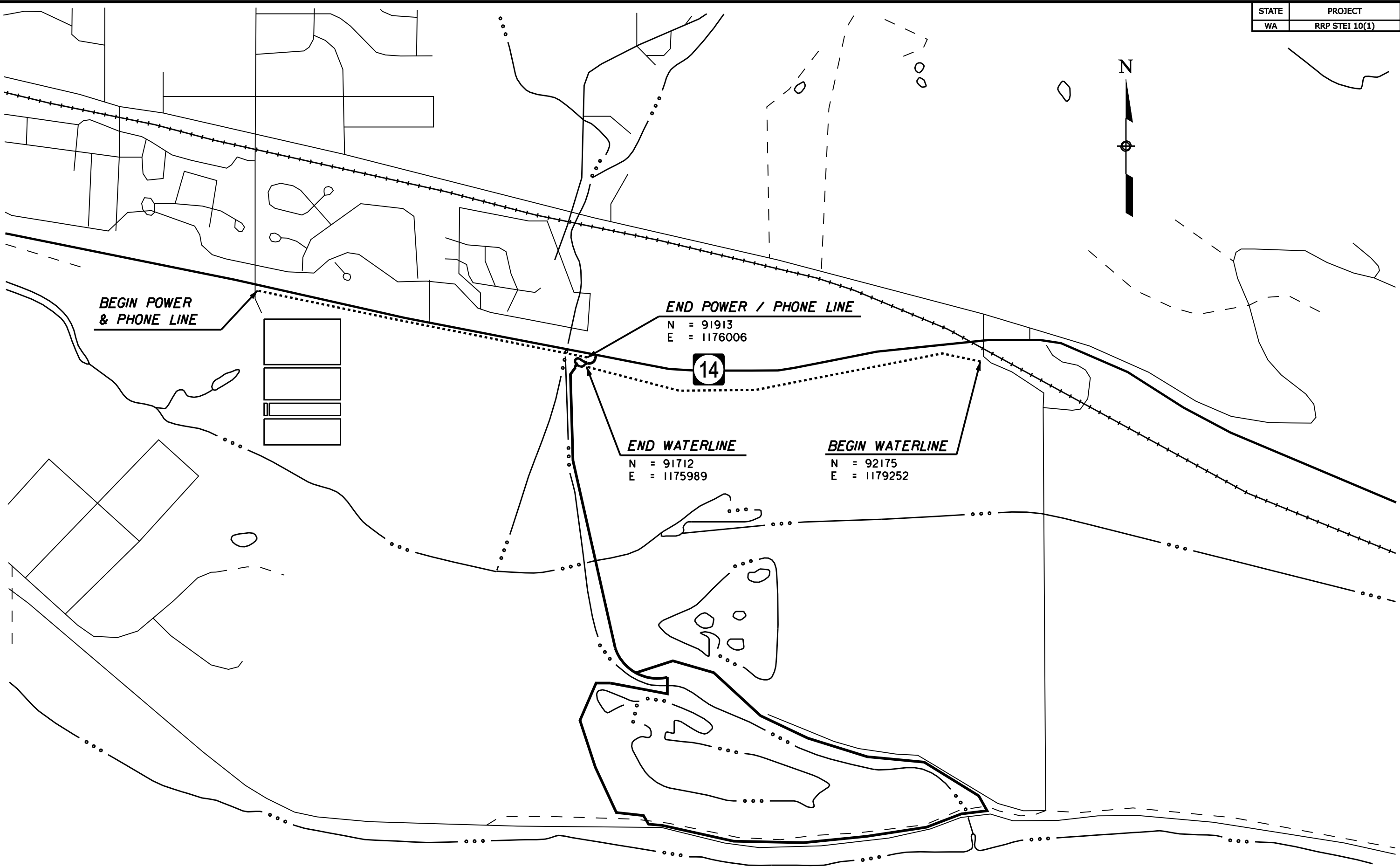
**ELEVATION
SIDE**

NOTE:
1. Powder Coat all hardware rust color.

NO SCALE

KIOSK DETAIL

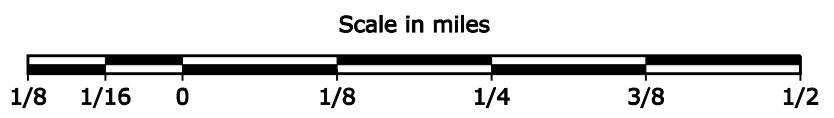
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Designed by: \$DATE\$
\$PATH\$



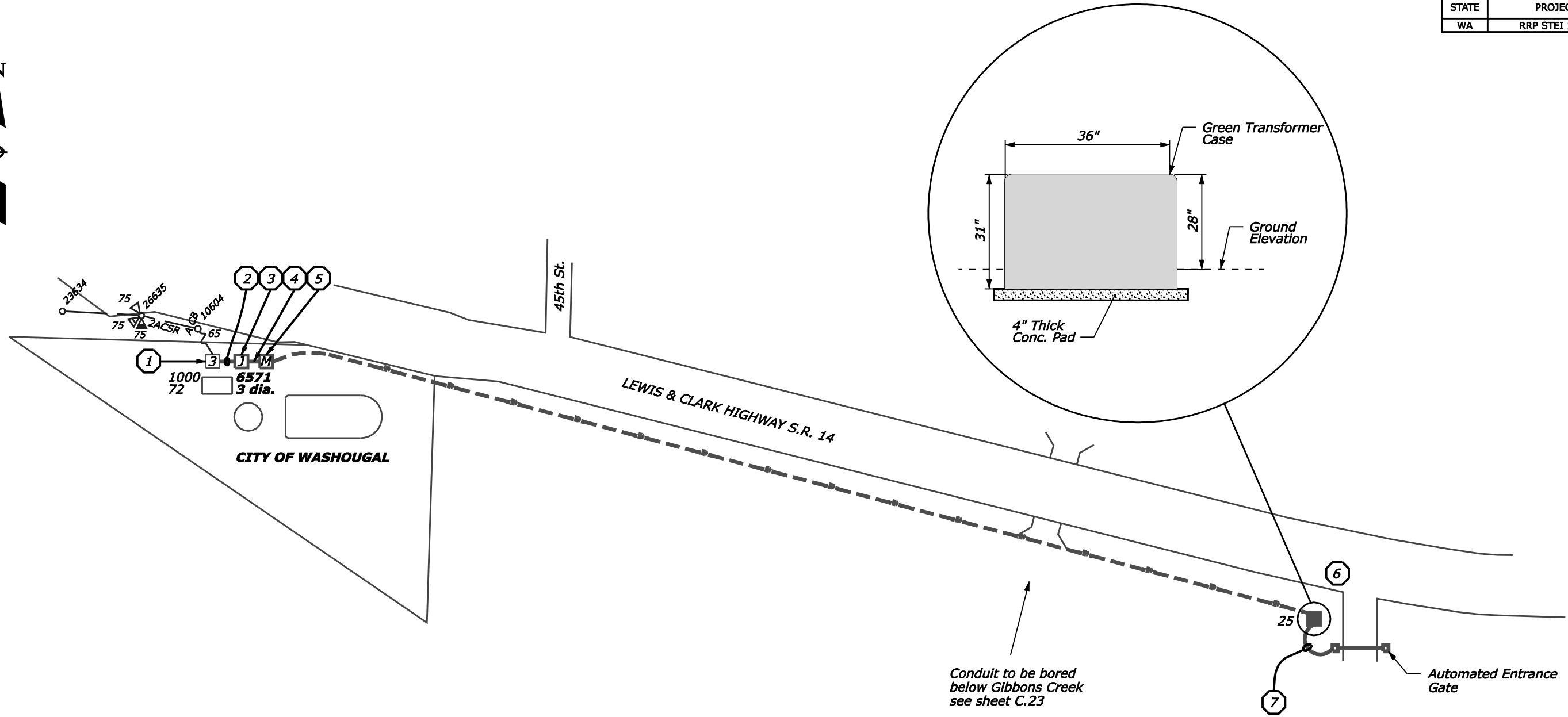
Checked by:

Designed by:

\$PATH\$



UTILITY LOCATION MAP



WORK DESCRIPTION:

- ① Provide (3) lb. elbows (s/n 1312) CPU to make up, connect, test and energize
- ② Trench, provide and install (3) 1/0 AL, 15 KV primary conductors in (1) 4" schedule 40 PVC conduit between existing 1000 KVA 3 phase transformer #72, and new 3 phase JBOX #6571, a distance of approximately 10', per CPU specifications.
- ③ Provide and install (1) 3 phase primary JBOX: CPU specifications UJ3, (1) UJM 44, (2) UJM 4. Assign #6571 and install tagging.
- ④ Provide and install (1) 1/0 AL, 15 KV primary conductor in 2" schedule 40 PVC conduit between JBOXE 65714 and primary metering cabinet (facilities beyond the primary meter are customer owned provided and maintained).
- ⑤ Install pad for 200A 1PH primary metering cabinet per CPU std. utility vault 4' x 6' pad w/ 14" x 30' blockout; and 4' x 4' x 3'-6" basement vault (Pad - utility vault model #4872-6 w/ 1430 B.O. & C-Channel) (Base - utility vault model #444-B; 4' x 4' x 3'-6")
- ⑥ Provide and install (1) 25 KVA 1 phase transformer.
- ⑦ Provide and install secondary conductors and conduits to gate service. Needs state LNI inspection prior to CPU terminating power.

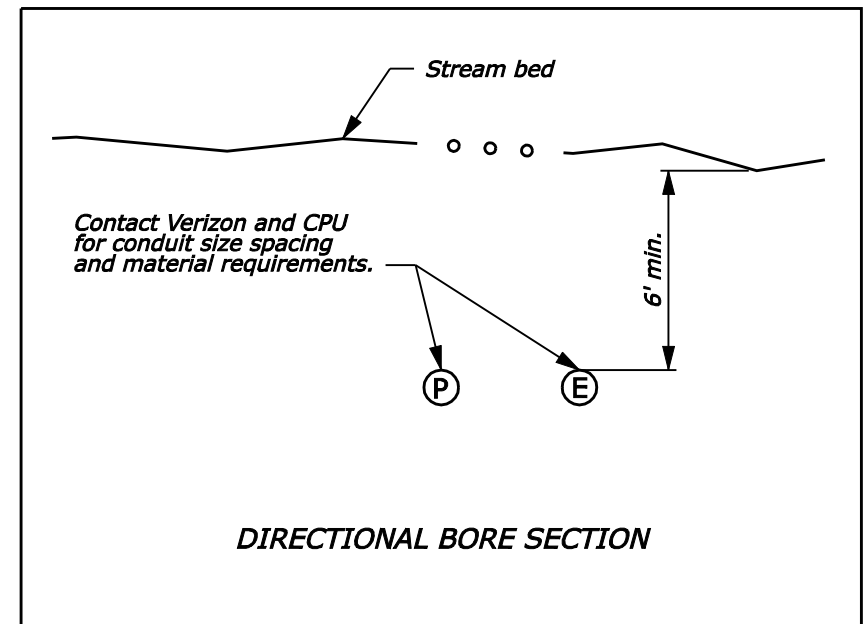
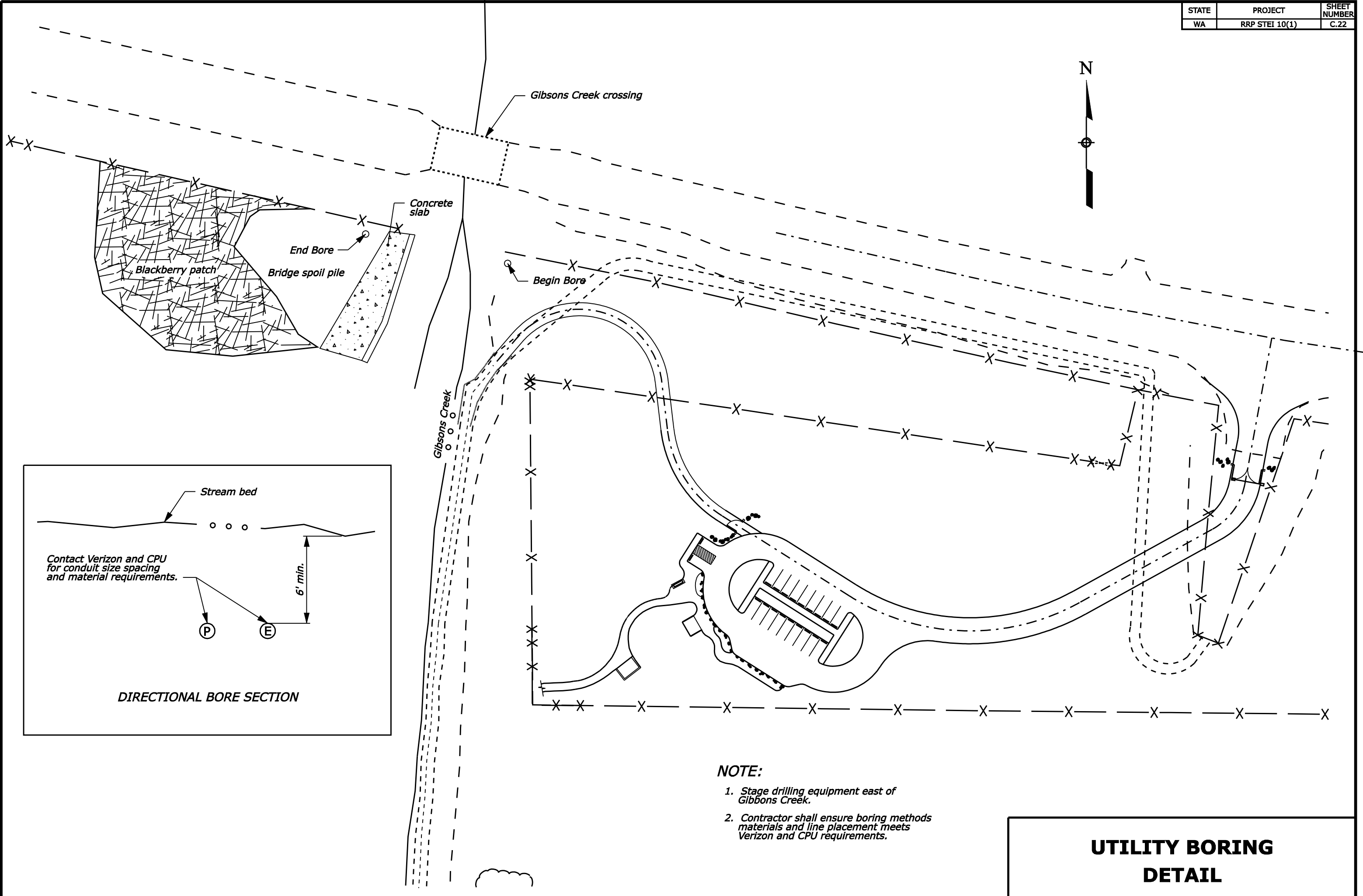
NOTE:

- 1. Distances are approximate. Actual footage may vary in field.
- 2. All conduit and ells are to be factory made with minimum 36" sweeps and inspected by CPU prior to backfill.
- 3. All material provided by customer for the construction of this plan must comply with Clark Public Utilities standards and technical specifications and be installed by any electrical system installation contractor on Clark Public Utilities current list of approved contractors.
- 4. Required inspections:
 Trench ---- Depth and location
 Conduit --- Size, type, elbows and location
 Final ----- Conductor, tagging, transformer and pad, connectors, make up, termination, etc.

UTILITY DETAIL

Checked by: \$DATE\$ Designed by: \$DATE\$

\$DATE\$



- NOTE:**
1. Stage drilling equipment east of Gibbons Creek.
 2. Contractor shall ensure boring methods materials and line placement meets Verizon and CPU requirements.

**UTILITY BORING
DETAIL**

Checked by:

Designed by:

\$DATE\$