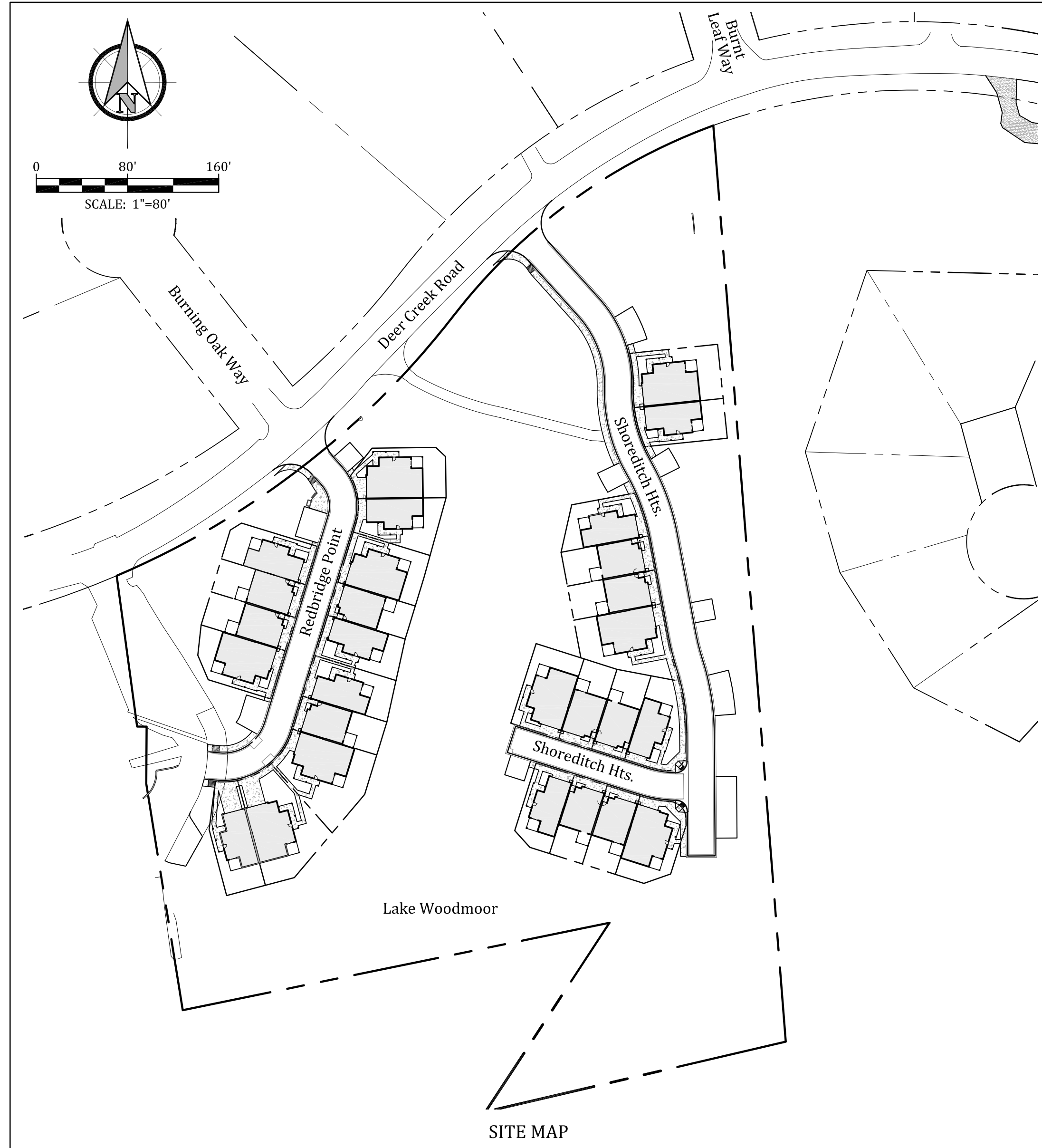


North Bay at Lake Woodmoor  
EL PASO COUNTY, COLORADO  
RESIDENTIAL SUBDIVISION CONSTRUCTION DRAWINGS  
Prepared for Lake Woodmoor Holdings, LLC




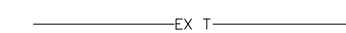



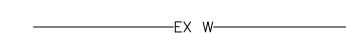

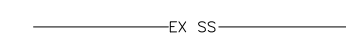



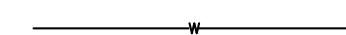

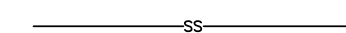



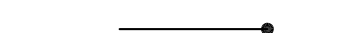

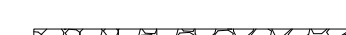




- EL PASO COUNTY STANDARD NOTES
- All drainage and roadway construction shall meet the standards and specifications of the City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2, and the El Paso County Engineering Criteria Manual.
  - Contractor shall be responsible for the notification and field notification of all existing utilities, whether shown on the plans or not, before beginning construction. Location of existing utilities shall be verified by the contractor prior to construction. Call 811 to contact the Utility Notification Center of Colorado (UNCC).
  - Contractor shall keep a copy of these approved plans, the Grading and Erosion Control Plan, the Stormwater Management Plan (SWMP), the soils and geotechnical report, and the appropriate design and construction standards and specifications at the job site at all times, including the following:
    - El Paso County Engineering Criteria Manual (ECM)
    - City of Colorado Springs/El Paso County Drainage Criteria Manual, Volumes 1 and 2
    - Colorado Department of Transportation (CDOT) Standard Specifications for Road and Bridge Construction
    - CDOT M & S Standards
  - Notwithstanding anything depicted in these plans in words or graphic representation, all design and construction related to roads, storm drainage and erosion control shall conform to the standards and requirements of the most recent version of the relevant adopted El Paso County standards, including the Land Development Code, the Engineering Criteria Manual, the Drainage Criteria Manual, and the Drainage Criteria Manual Volume 2. Any deviations from regulations and standards must be requested, and approved, in writing. Any modifications necessary to meet criteria after-the-fact will be entirely the developer's responsibility to rectify.
  - It is the design engineer's responsibility to accurately show existing conditions, both onsite and offsite, on the construction plans. Any modifications necessary due to conflicts, omissions, or changed conditions will be entirely the developer's responsibility to rectify.
  - Contractor shall schedule a pre-construction meeting with El Paso County Development Services Department (DSD) - Inspections, prior to starting construction. It is the contractor's responsibility to understand the requirements of all jurisdictional agencies and to obtain all required permits, including but not limited to El Paso County Erosion and Stormwater Quality Control Permit (ESQCP), Regional Building Floodplain Development Permit, U.S. Army Corps of Engineers-issued 401 and/or 404 permits, and county and state fugitive dust permits.
  - Contractor shall not deviate from the plans without first obtaining written approval from the design engineer and DSD. Contractor shall notify the design engineer immediately upon discovery of any errors or inconsistencies.
  - All storm drain pipe shall be Class III RCP unless otherwise noted and approved by DSD.
  - Contractor shall coordinate geotechnical testing per ECM standards. Pavement design shall be approved by El Paso County DSD prior to placement of curb and gutter and pavement.
  - All construction traffic must enter/exit the site at approved construction access points.
  - Sight visibility triangles as identified in the plans shall be provided at all intersections. Obstructions greater than 18 inches above flowline are not allowed within sight triangles.
  - Signage and striping shall comply with El Paso County DOT and MUTCD criteria. [If applicable, additional signage and striping notes will be provided.]
  - Contractor shall obtain any permits required by El Paso County DOT, including Work Within the Right-of-Way and Special Transport permits.
  - The limits of construction shall remain within the property line unless otherwise noted. The owner/developer shall obtain written permission and easements, where required, from adjoining property owner(s) prior to any off-site disturbance, grading, or construction.

- GENERAL NOTES:
- All new construction to conform to the specifications of the El Paso County Development Services Department. Any asphalt to be removed is to be replaced to meet the specifications of the El Paso County Development Services Department.
  - A Pre-Construction meeting shall be held with the El Paso County Development Services Department and Woodmoor Water and Sanitation District prior to any construction.
  - Approved plans, County Engineering Criteria Manual, etc. is required to be on-site at all times.
  - All necessary permits, such as a Stormwater Discharge Permit and associated Stormwater Management Plan, Fugitive Dust, Access, etc. shall be obtained prior to construction.
  - Profile design lines and horizontal stationing are based on centerline, as shown, unless otherwise noted.
  - Pavement design to be based on resistance value 'R' derived from Hveem tests and are approved by the El Paso County Development Services Department prior to work above subgrade.
  - The locations of existing utilities have been shown according to the best available information. The contractor is responsible for field location and verification of existing utilities prior to beginning work. If it appears that there could be a conflict with any utilities, whether indicated on the plans or not, the contractor is to notify the engineer and qwner immediately. The contractor is responsible for the protection and repair (if necessary) of all utilities.
  - Where appropriate, neatly sawcut all existing concrete and asphalt. Repair/replace all disturbed existing items with like materials and thicknesses.
  - All disturbed areas shall be revegetated with native grasses within 30 days of excavation per Erosion Control Plan.
  - The prepared Erosion/Sediment Control Plan is to be considered a part of these plans and its requirements adhered to during the construction of this project.
  - All storm and sanitary sewer pipe lengths and slopes are figured from center of manhole or bend. Culvert pipe lengths are determined from the end of the flared end sections. Pipe lengths given as a horizontal length.
  - All storm sewer bedding to be per CDOT Standards.
  - All storm sewer pipe class and type is called out on the plan and profile sheets.
  - Concrete pipe joint fasteners are required on the first two pipe joints from the downstream flared end section of a drainage pipe.
  - All wyes and bends used in construction of stormsewer facilities shall be factory fabricated, unless approved by the E Paso County Development Services Department.
  - Construction and materials used in all storm and sanitary sewer manholes shall be per specification.
  - Water and sanitary sewer service provided by Woodmoor Water and Sanitation District. Telephone service provided by US West Communications. Gas service provided by Blackhills Energy. Electric service provided by Mountain View Electric.
  - All easements located outside of the platted area shall be secured by Owner prior to final approval by El Paso County Development Services Department.
  - The horizontal control is the state plane coordinate system, Colorado Central Zone (NAD 83). Coordinates of the two temporary benchmarks are noted below and on the plan.

Benchmarks: NGS Benchmark "T 395" -- Elevation = 7111.32 (NAVD 1988)  
TBM#1 Northwest Property Corner (N22,611.42, E49,719.36) Elevation=7133.64  
TBM#2 Northeast Property Corner (N23,006.10, E50,252.56) Elevation=7134.40



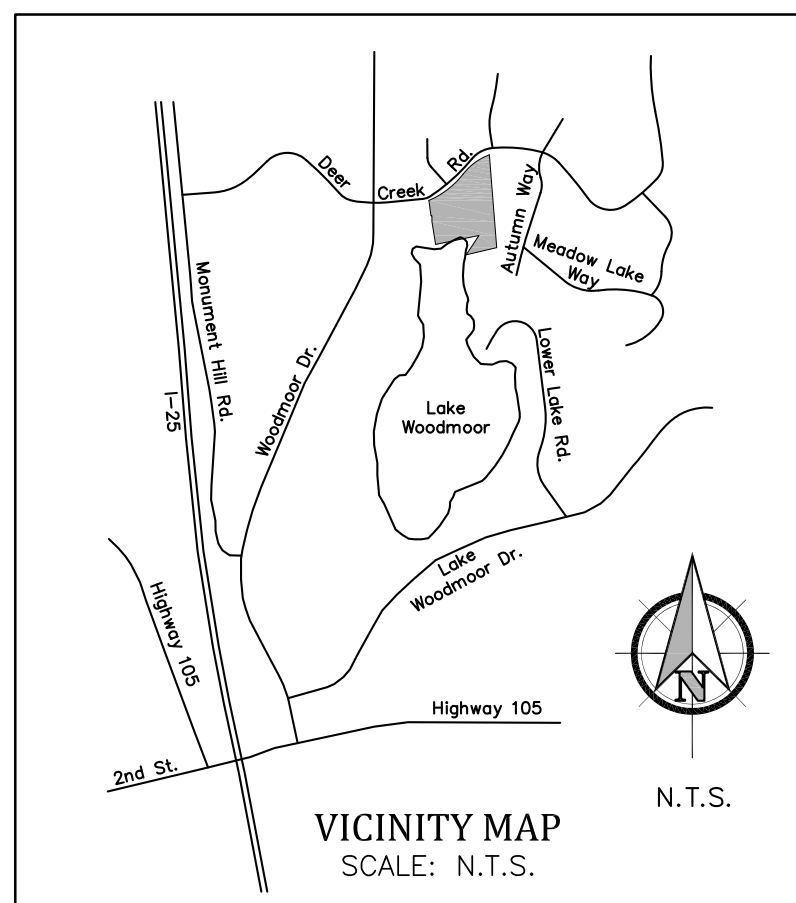
SITE MAP

LEGEND			
	ELECTRICAL BOX		FENCE LINE
	ELECTRIC METER		EXSTG. UNDERGROUND TELEPHONE
	TELEPHONE PEDESTAL		EXSTG. UNDERGROUND ELECTRIC
	SANITARY SEWER MANHOLE		EXSTG. WATER LINE
	CLEAN OUT		EXSTG. WASTEWATER LINE
	GAS METER		PROPOSED STORMSEWER
	FIRE HYDRANT		PROPOSED WATER LINE
	WATER VALVE		PROPOSED WASTEWATER LINE
	WELL HEAD		PROPOSED WATER SERVICE
	PINE TREE		PROPOSED WASTEWATER SERVICE
	GRAVEL DRIVEWAY		RIPRAP
	CONCRETE		PROPOSED BUILDING
	SIGN		PROPOSED WASTEWATER UNDERDRAIN

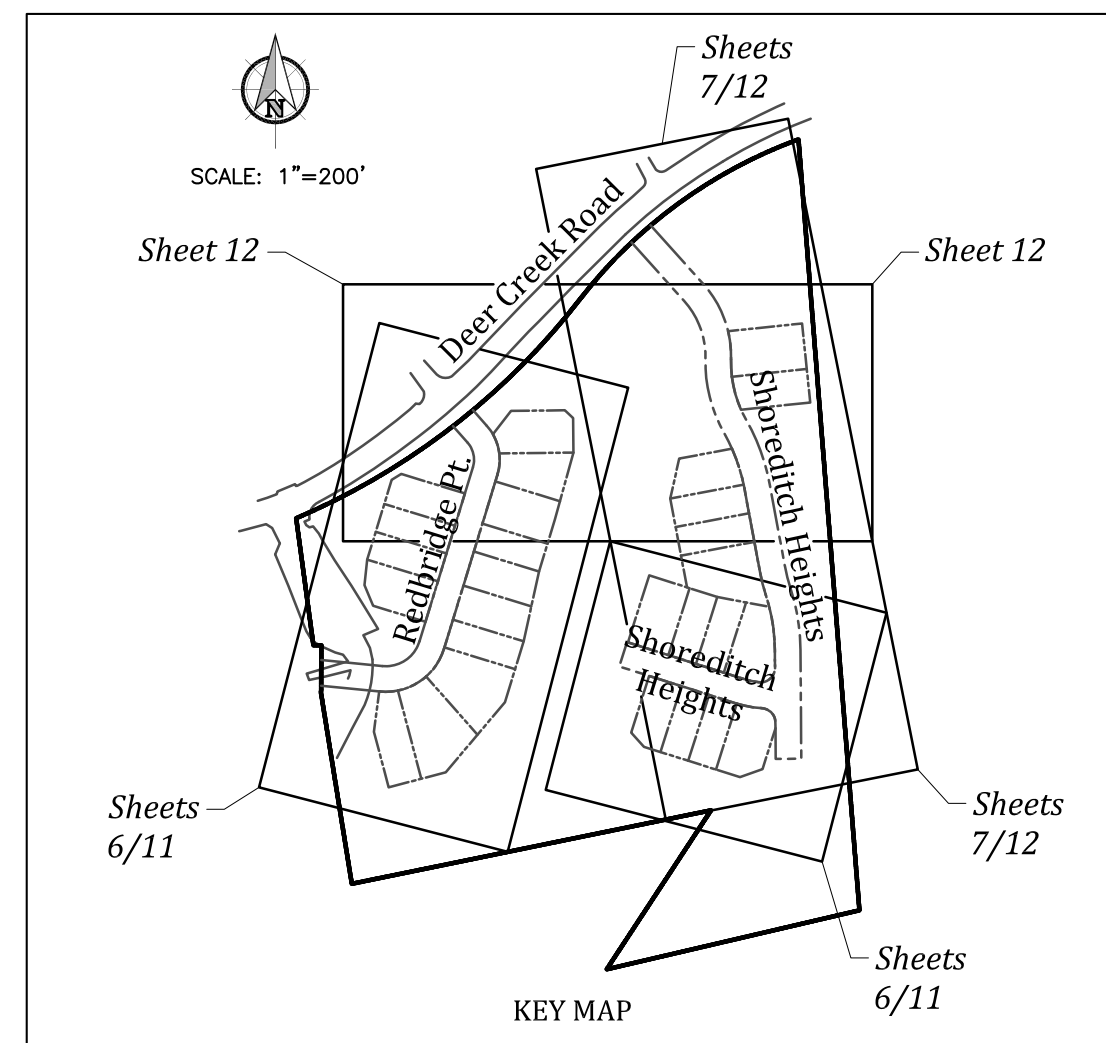
ABBREVIATIONS		
ASSY = ASSEMBLY	NTS = NOT TO SCALE	
BNDY = BOUNDARY	OD = OUTSIDE DIAMETER	
BOP = BOTTOM OF PIPE	PC = POINT OF HORIZONTAL CURVATURE	
C&G = CURB & GUTTER	PLBG = PLUMBING	
CL = CENTERLINE	POC = POINT OF CONNECTION	
CO = CLEAN OUT	PP = PROPOSED	
CRA = CONCRETE REVERSE ANCHOR	PRC = POINT OF REVERSE CURVE	
CR = POINT OF CURB RETURN	PROP = PROPERTY	
CS = CROSS SLOPE	PRT = PRIVATE	
CTB = CONCRETE THRUST BLOCK	PT = POINT OF HORIZONTAL TANGENCY	
DIP = DUCTILE IRON PIPE	PVC = POLY VINYL CHLORIDE PIPE	
DTL = DETAIL	PVC = POINT OF VERTICAL CURVATURE	
EL = ELEVATION	PVI = POINT OF VERTICAL INTERSECTION	
EOA = EDGE OF ASPHALT	PVT = POINT OF VERTICAL TANGENCY	
EOG = EDGE OF GRAVEL	R = RADIUS	
ESMT = EASEMENT	R = RIGHT	
EX = EXISTING	RCP = REINFORCED CONCRETE PIPE	
FC = FACE OF CURB	RD = ROOF DRAIN (STORM LINE)	
FES = FLARED END SECTION	ROW = RIGHT OF WAY	
FLG = FLANGE	RT = RIGHT	
FL = FLOWLINE	SHT = SHEET	
GB = GRADE BREAK	SOI = SAND OIL INTERCEPTOR	
HP = HIGH POINT	SS = SANITARY SEWER	
HORIZ = HORIZONTAL	STA = STATION	
HYD = HYDRANT	STD = STANDARD	
ID = INSIDE DIAMETER	TA = TOP OF ASPHALT	
L = LEFT	TB = THRUST BLOCK	
LT = LEFT	TC = TOP OF CURB	
LF = LINEAR FEET	TOA = TOP OF ASPHALT	
LP = LOW POINT	TOC = TOP OF CONCRETE	
MAX = MAXIMUM	TOP = TOP OF PIPE	
MH = MANHOLE	TYP = TYPICAL	
MIN = MINIMUM	VC = VERTICAL CURVE	

Kiowa Project No. 15073  
September 4, 2018

CONTACT LIST		
El Paso County Planning and Community Development	Nina Ruiz	719-520-6313
Lake Woodmoor Holdings, LLC	Thomas Taylor	719-867-2250
N.E.S., Inc.	Ron Bevens	719-471-0073
Kiowa Engineering Corp.	Chris Castelli	720-330-2553
Woodmoor Water & Sanitation District		719-488-2525
Mountain View Electric Assoc.		719-495-2283
Tri-Lakes Monument Fire Protection District		719-484-0911



VICINITY MAP  
SCALE: N.T.S.



KEY MAP

STATEMENTS

Design Engineer's Statement:

These detailed plans and specifications were prepared under my direction and supervision. Said plans and specifications have been prepared according to the criteria established by the County for detailed roadway, drainage, grading and erosion control plans and specifications, and said plans and specifications are in conformity with applicable master drainage plans and master transportation plans. Said plans and specifications meet the purposes for which the particular roadway and drainage facilities are designed and are correct to the best of my knowledge and belief. I accept responsibility for any liability caused by any negligent acts, errors or omissions on my part in preparation of these detailed plans and specifications.

Christopher J. Castelli, P.E. #38842 Date  
For and on behalf of Kiowa Engineering Corp.

Owner/Developer's Statement:

I, the owner/developer have read and will comply with all of the requirements specified in these detailed plans and specifications.

Thomas Taylor, Director of Development Services Date  
Lake Woodmoor Holdings, LLC  
1755 Telstar Drive Suite 211  
Colorado Springs, Colorado 80920

El Paso County:

County plan review is provided only for general conformance with County Design Criteria. The County is not responsible for the accuracy and adequacy of the design, dimensions, and/or elevations which shall be confirmed at the job site. The County through the approval of this document assumes no responsibility for completeness and/or accuracy of this document.

Filed in accordance with the requirements of the El Paso County Land Development Code, Drainage Criteria Manual, and Engineering Criteria Manual as amended.

In accordance with ECM Section 1.12, these construction documents will be valid for construction for a period of 2 years from the date signed by the El County Engineer. If construction has not started within those 2 years, the plans will need to be resubmitted for approval, including payment of review fees at the Planning and Community Development Director's discretion.

Jennifer Irvine, P.E. Date  
County Engineer / ECM Administrator

Tri-Lakes Monument Fire Protection District:

The number of fire hydrants and hydrant locations as shown on the Utility System Plan are correct and adequate to satisfy the fire protection requirements as specified by the Tri-Lakes Monument Fire Protection District.

Date: By:

Woodmoor Water and Sanitation District No. 1  
Approved for Construction

Date: By:

These plans have been reviewed only for general conformance with District Rules and Regulations and System Specifications. Review and construction approval by the District does not relieve the Developer/Owner and/or Contractor from responsibility for compliance with any Rules, Regulations, or Specifications required by the District.

DEVELOPER:

Lake Woodmoor Holdings, LLC  
1755 Telstar Drive Suite 211  
Colorado Springs, CO 80920

PREPARED BY:

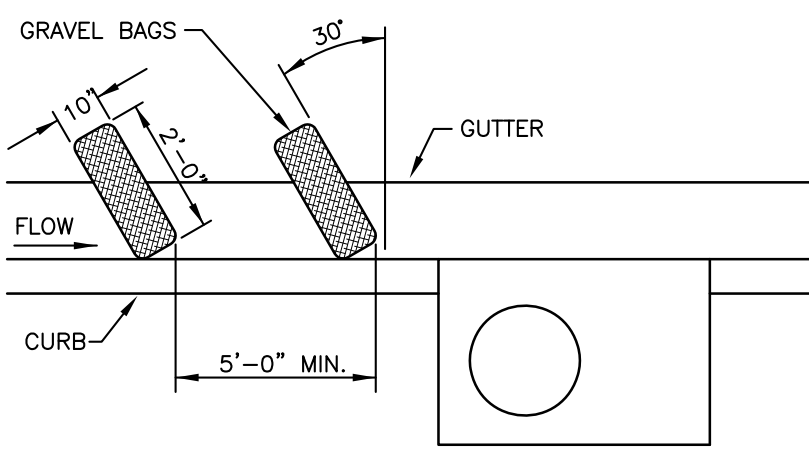
**Kiowa**  
Engineering Corporation  
1604 South 21st Street  
Colorado Springs, Colorado 80904  
(719) 630-7342

PCD Project No. SF-16-021



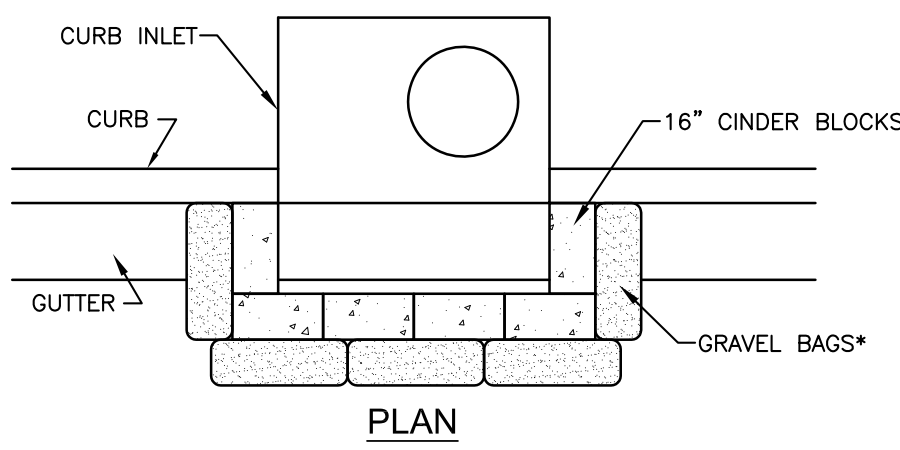






## CURB SOCK INLET PROTECTION (IP-4)

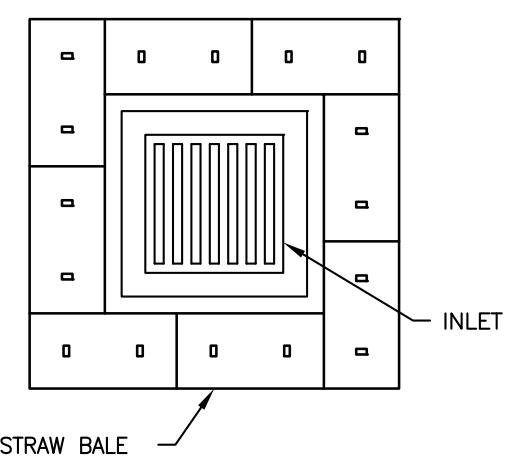
NTS



SECTION

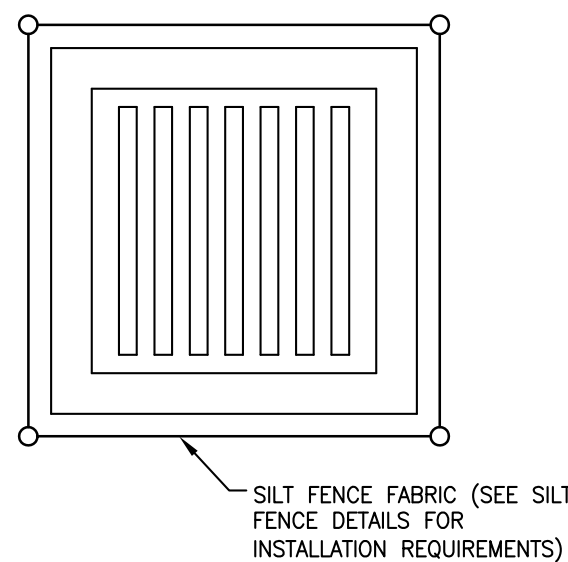
## BLOCK AND GRAVEL BAG INLET PROTECTION (IP-3)

NTS



## STRAW BALE INLET PROTECTION (IP-2)

NTS



## FILTER FABRIC INLET PROTECTION (IP-1)

NTS

### INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. BAGS ARE TO BE MADE OF 1/4" WIRE MESH (USED WITH GRAVEL ONLY) OR GEOTEXTILE.
3. WASHED SAND OR GRAVEL 3/4 INCH TO 4 INCHES IN DIAMETER IS PLACED INSIDE THE SOCK.
4. PLACEMENT OF THE SOCK IS TO BE 30 DEGREES FROM PERPENDICULAR IN THE OPPOSITE DIRECTION OF FLOW.
5. AT LEAST 2 CURB SOCKS IN SERIES IS REQUIRED.

### MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACED.
3. SEDIMENT SHALL BE REMOVED WHEN GUTTER WIDTH IS FILLED.
4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE COUNTY.

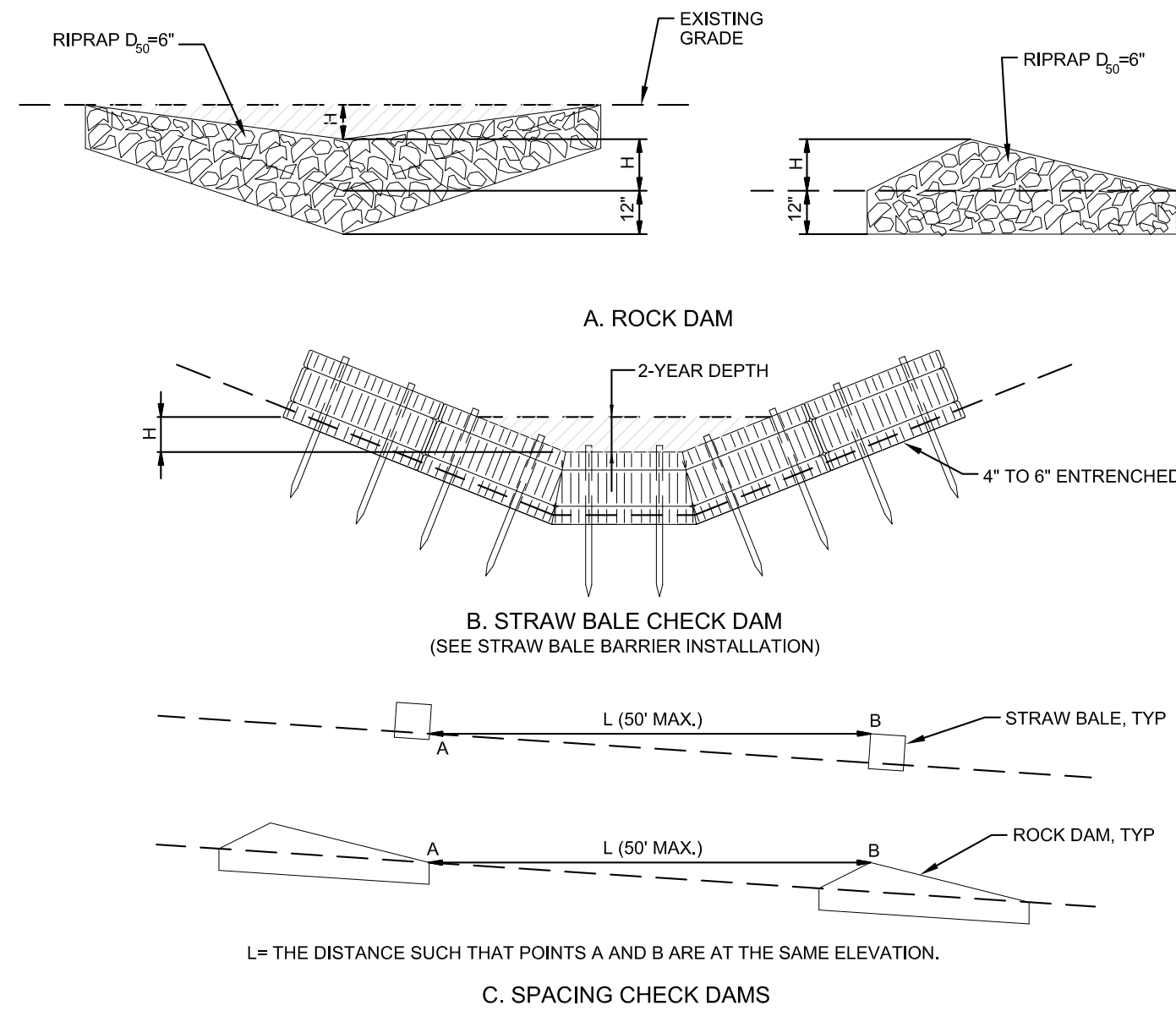
### INSTALLATION REQUIREMENTS

1. INLET PROTECTION SHALL BE INSTALLED IMMEDIATELY AFTER CONSTRUCTION OF INLET.
2. CONCRETE BLOCKS ARE TO BE LAID AROUND THE INLET IN A SINGLE ROW ON THEIR SIDES, ABUTTING ONE ANOTHER WITH THE OPEN ENDS OF THE BLOCK FACING OUTWARD.
3. GRAVEL BAGS ARE TO BE PLACED AROUND THE CONCRETE BLOCKS CLOSELY ABUTTING ONE ANOTHER SO THERE ARE NO GAPS.
4. GRAVEL BAGS ARE TO CONTAIN WASHED SAND OR GRAVEL APPROXIMATELY 3/4" IN DIAMETER.
5. BAGS ARE TO BE MADE OF 1/4" WIRE MESH (USED WITH GRAVEL ONLY) OR GEOTEXTILE.

### MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT INLET PROTECTION IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.
2. DAMAGED OR INEFFECTIVE INLET PROTECTION SHALL PROMPTLY BE REPAIRED OR REPLACED.
3. SEDIMENT SHALL BE REMOVED WHEN SEDIMENT HAS ACCUMULATED TO APPROXIMATELY 1/2 THE DESIGN DEPTH OF THE TRAP.
4. INLET PROTECTION SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED WITHIN THE DRAINAGE AREA AS APPROVED BY THE COUNTY.

\*NOTE: AN ALTERNATE 3/4" TO 1" GRAVEL FILTER OVER A WIRE SCREEN MAY BE USED IN PLACE OF GRAVEL BAGS. THE WIRE MESH SHALL EXTEND ABOVE THE TOP OF THE CONCRETE BLOCKS AND THE GRAVEL PLACED OVER THE WIRE SCREEN TO THE TOP OF THE CONCRETE BLOCKS.



## CHECK DAM (CD-A, CD-B)

NTS

### INSTALLATION REQUIREMENTS

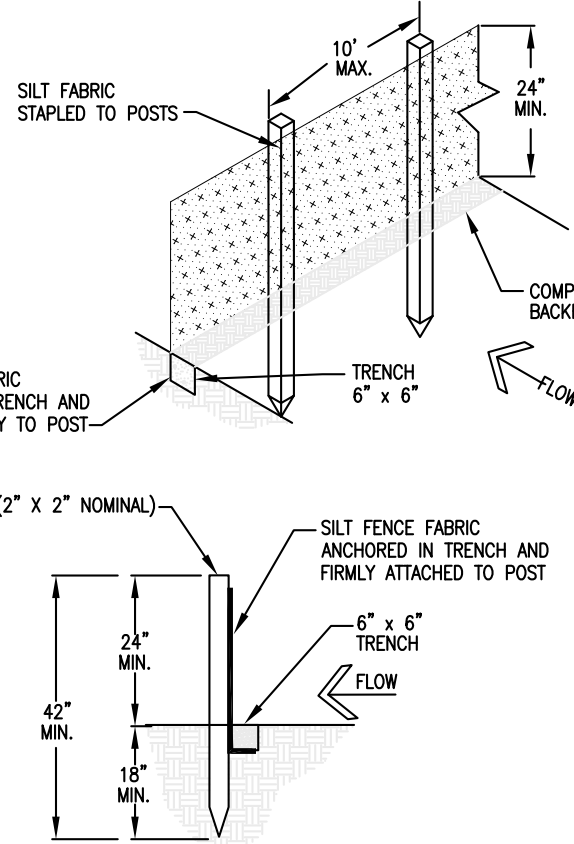
1. STRAW BALE BARRIERS SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
2. BALES SHALL CONSIST OF APPROXIMATELY 5 CUBIC FEET OF CERTIFIED WEED FREE HAY OR STRAW AND WEIGH NOT LESS THAN 35 POUNDS.
3. BALES ARE TO BE PLACED IN A SINGLE ROW WITH THE END OF THE BALES TIGHTLY ABUTTING ONE ANOTHER.
4. EACH BALE IS TO BE SECURELY ANCHORED WITH AT LEAST TWO STAKES AND THE FIRST STAKE IS TO BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.
5. STAKES ARE TO BE A MINIMUM OF 42 INCHES LONG. METAL STAKES SHALL BE STANDARD "T" OR "U" TYPE WITH MINIMUM WEIGHT OF 1.33 POUNDS PER LINEAR FOOT. WOOD STAKES SHALL HAVE A MINIMUM DIAMETER OR CROSS SECTION DIMENSION OF 2 INCHES.
6. BALES ARE TO BE BOUND WITH EITHER WIRE OR STRING AND ORIENTED SUCH THAT THE BINDINGS ARE AROUND THE SIDES AND NOT ALONG THE TOPS AND BOTTOMS OF THE BALE.
7. GAPS BETWEEN BALES ARE TO BE CHINKED ( FILLED BY WEDGING) WITH STRAW OR THE SAME MATERIAL OF THE BALE.
8. END BALES ARE TO EXTEND UPSLOPE SO THE TRAPPED RUNOFF CANNOT FLOW AROUND THE ENDS OF THE BARRIER.

### MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT STRAW BALE BARRIERS IMMEDIATELY AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.
2. DAMAGED OR INEFFECTIVE BARRIERS SHALL PROMPTLY BE REPAIRED, REPLACING BALES IF NECESSARY, AND UNTRENCHED BALES NEED TO BE REPAIRED WITH COMPACTED BACKFILL MATERIAL.
3. SEDIMENT SHALL BE REMOVED FROM BEHIND STRAW BALE BARRIERS WHEN IT ACCUMULATES TO APPROXIMATELY 1/2 THE HEIGHT OF THE BARRIER.
4. STRAW BALE BARRIERS SHALL BE REMOVED WHEN ADEQUATE VEGETATIVE COVER IS ATTAINED AS APPROVED BY THE COUNTY.

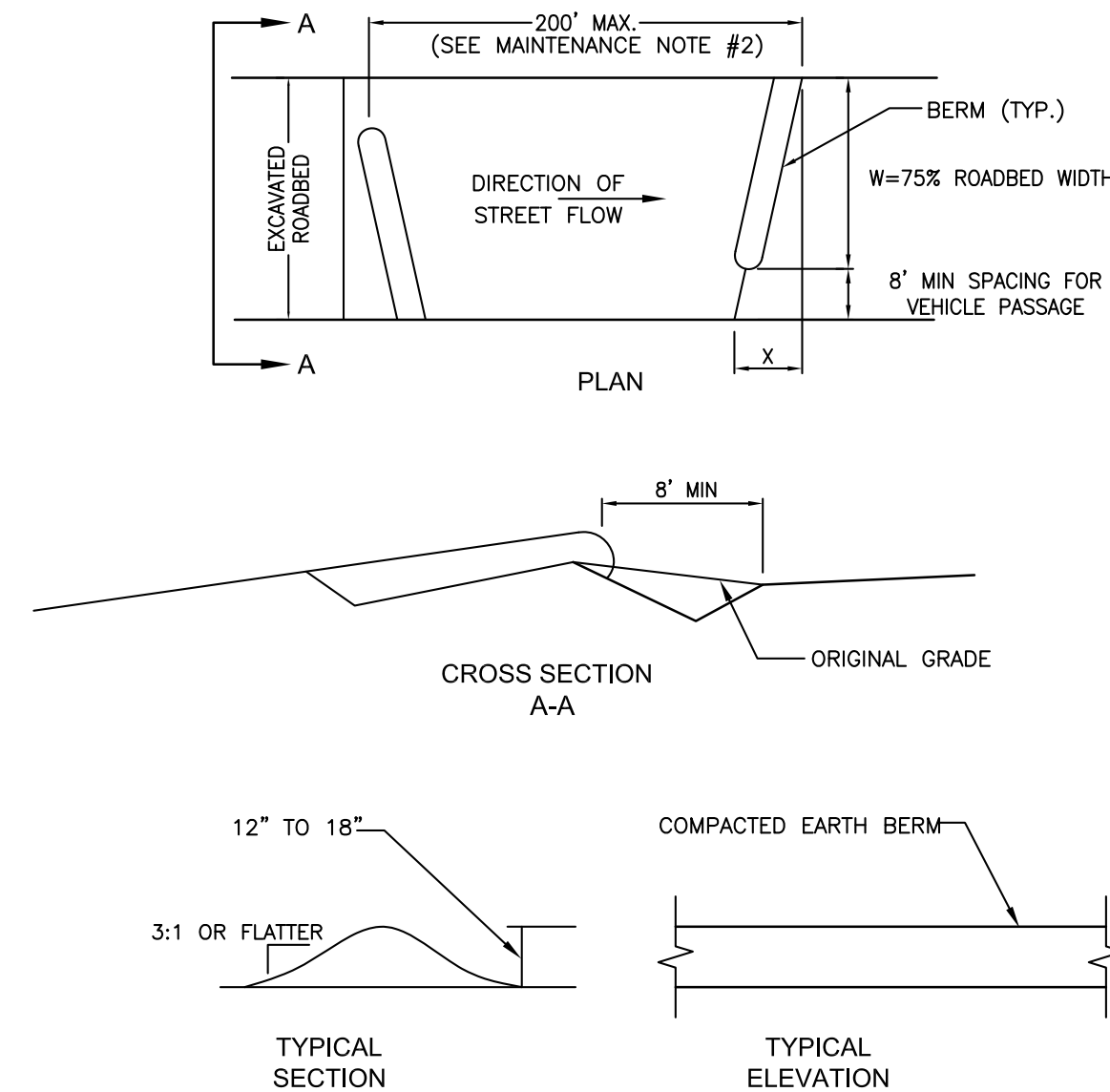
## STRAW BALE BARRIER (SBB)

NTS



## SILT FENCE DETAIL (SF)

NTS

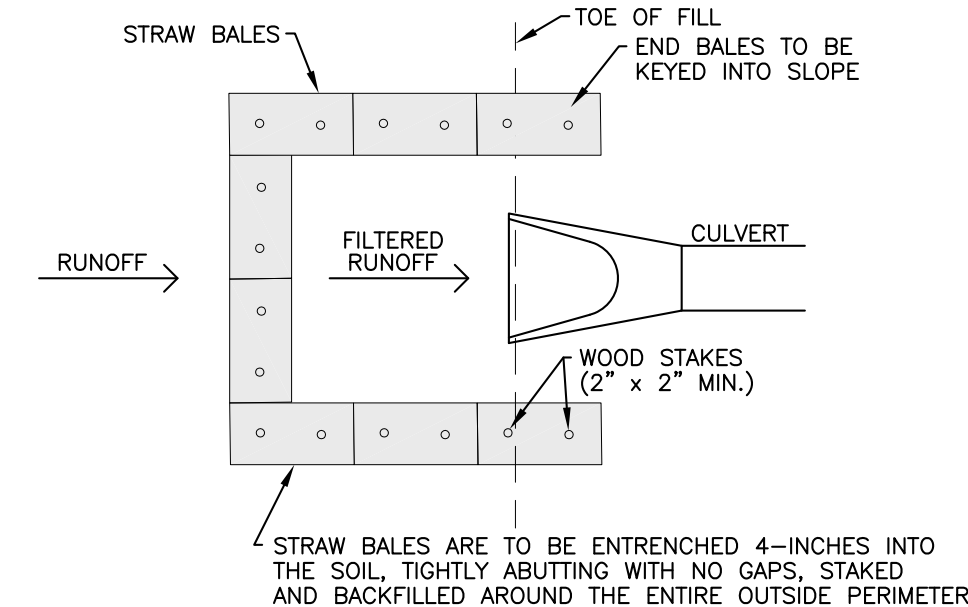


## ROUGH-CUT STREET CONTROL (RCS)

NTS FOR STREET SLOPES > 4%

DEFINITION  
A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN CULVERT INLET.

PURPOSES  
TO PREVENT SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA.



## CULVERT INLET PROTECTION (CIP)

NTS

### INSTALLATION REQUIREMENTS:

1. TEMPORARY SOIL BERMS SHALL BE GRADED ALONG BOTH SIDES OF A ROUGH CUT STREET TO DIVERT SEDIMENT-LADEN RUNOFF & SLOW THE VELOCITY OF STORM RUNOFF.
2. ALTERNATE MATERIALS SUCH AS CURB SOCKS OR SILT FENCES MAY BE USED WHERE LARGE FLOWS ARE NOT EXPECTED.
3. REQUIREMENTS FOR AND SPACING OF VELOCITY REDUCERS FOR STREETS WITH GRADES OF LESS THAN 4% SHALL BE AS SHOWN ON THE EROSION CONTROL PLAN.

### MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT BERMS AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL, AND WEEKLY DURING PERIODS OF NO RAINFALL.
2. BERMS SHALL BE ROUTINELY CLEARED OF ANY DEBRIS OR ACCUMULATION OF SEDIMENT.
3. ERODED BERMS SHALL IMMEDIATELY BE REPAIRED.
4. TEMPORARY BERMS SHALL REMAIN OPERATIONAL AND PROPERLY MAINTAINED UNTIL THE SITE AREA IS PERMANENTLY STABILIZED WITH ADEQUATE VEGETATIVE COVER AND/OR OTHER PERMANENT STRUCTURE AS APPROVED BY THE COUNTY.

W	X
20' - 30'	5'
31' - 40'	7'
41' - 50'	9'
51' - 60'	10.5'
61' - 70'	12'

North Bay at Lake Woodmoor

Final Grading and Erosion Control Plan  
El Paso County, Colorado

Kiowa  
Celebrating 30 years  
Engineering Corporation  
1604 South 21st Street  
Colorado Springs, Colorado 80904  
(719) 630-7342

Project No.: 15073  
Date: September 4, 2018  
Design: NRK  
Drawn: CAD  
Check: AWMc  
Revisions:

SHEET

3

OF 21 SHEETS

NOTE:  
DETAILS SHOWN MAY NOT BE REQUIRED FOR THIS PROJECT.  
REFER TO GRADING AND EROSION CONTROL PLAN. ANY CHANGES  
SHALL BE COORDINATED WITH EL PASO COUNTY ENGINEERING  
DIVISION INSPECTIONS







INSTALLATION REQUIREMENTS

- SEE GEC FOR:
  - LOCATION OF DIVERSION DITCH.
  - TYPE OF DITCH (UNLINED, ECB LINED, PLASTIC LINED OR RIPRAP LINED).
  - LENGTH OF EACH TYPE OF DITCH.
  - DEPTH, "D", AND WIDTH, "W", DIMENSIONS.
  - FOR ECB LINED DITCH, EROSION CONTROL BLANKET TYPE (SEE ECB DETAIL).
  - FOR RIPRAP LINED DITCH, SIZE OF RIPRAP, "D<sub>50</sub>".
- SEE DRAINAGE PLANS FOR DETAILS OF ANY PERMANENT CONVEYANCE FACILITIES OR DIVERSION DITCHES EXCEEDING A 2-YEAR FLOW RATE OF 10 CFS.
- DIVERSION DITCHES INDICATED ON INITIAL SWMP PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
- FOR ECB LINED DITCHES, INSTALLATION OF EROSION CONTROL BLANKET SHALL CONFORM TO THE REQUIREMENTS OF THE ECB DETAIL.
- IN LOCATIONS WHERE CONSTRUCTION TRAFFIC MUST CROSS A DIVERSION DITCH, THE PERMITTEES SHALL INSTALL A TEMPORARY CULVERT WITH A MINIMUM DIAMETER OF 12-INCHES.

MAINTENANCE REQUIREMENTS

- THE SWMP MANAGER SHALL INSPECT DIVERSION DITCHES WEEKLY AND DURING AND AFTER ANY STORM. MAKE REPAIRS AS NECESSARY.
- DIVERSION DITCHES ARE TO REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, OR IF APPROVED BY LOCAL JURISDICTION MAY BE LEFT IN PLACE.
- IF DIVERSION DITCHES ARE REMOVED, DISTURBED AREA SHALL BE COVERED WITH TOPSOIL, DRILL, SEEDED, HAY CRIMPED MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.

INSTALLATION REQUIREMENTS

- ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNING.
- CONSTRUCTION ENTRANCES ARE TO BE BUILT WITH AN APRON TO ALLOW FOR TURNING TRAFFIC, BUT SHOULD NOT BE BUILT OVER EXISTING PAVEMENT EXCEPT FOR A SLIGHT OVERLAP.
- AREAS TO BE STABILIZED ARE TO BE PROPERLY GRADED AND COMPACTED PRIOR TO LAYING DOWN GEOTEXTILE AND STONE.
- CONSTRUCTION ROADS, PARKING AREAS, LOADING/UNLOADING ZONES, STORAGE AREAS, AND STAGING AREAS ARE TO BE STABILIZED.
- CONSTRUCTION ROADS ARE TO BE BUILT TO CONFORM TO SITE GRADES, BUT SHOULD NOT HAVE SIDE SLOPES OR ROAD GRADES THAT ARE EXCESSIVELY STEEP.

MAINTENANCE REQUIREMENTS

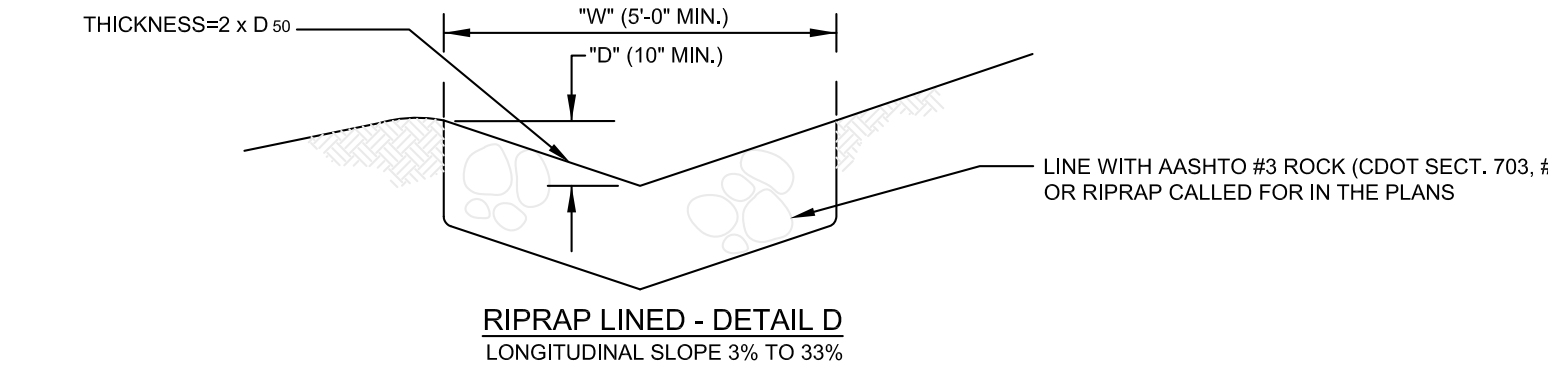
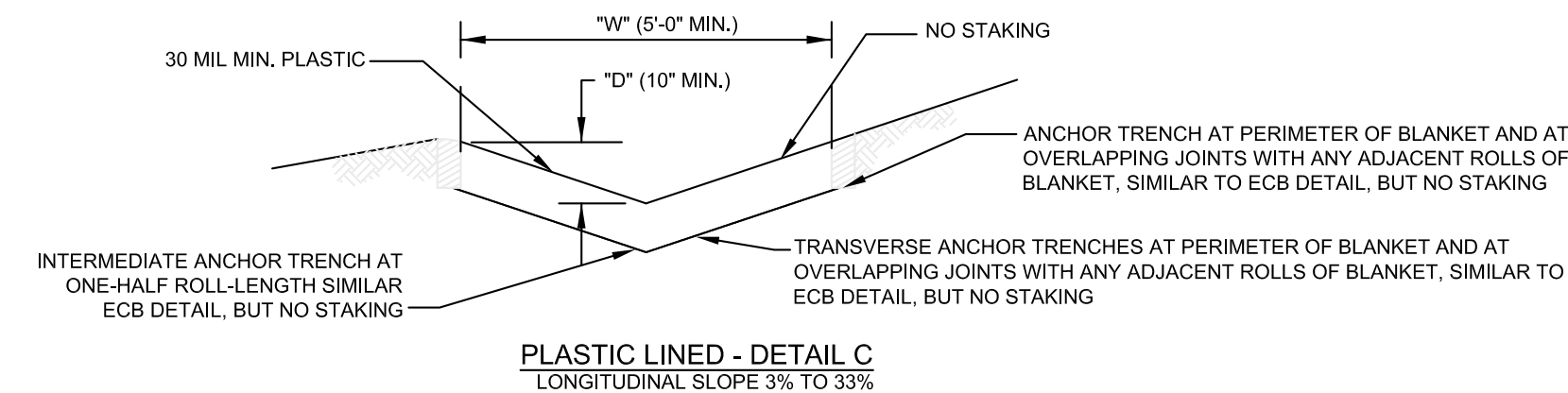
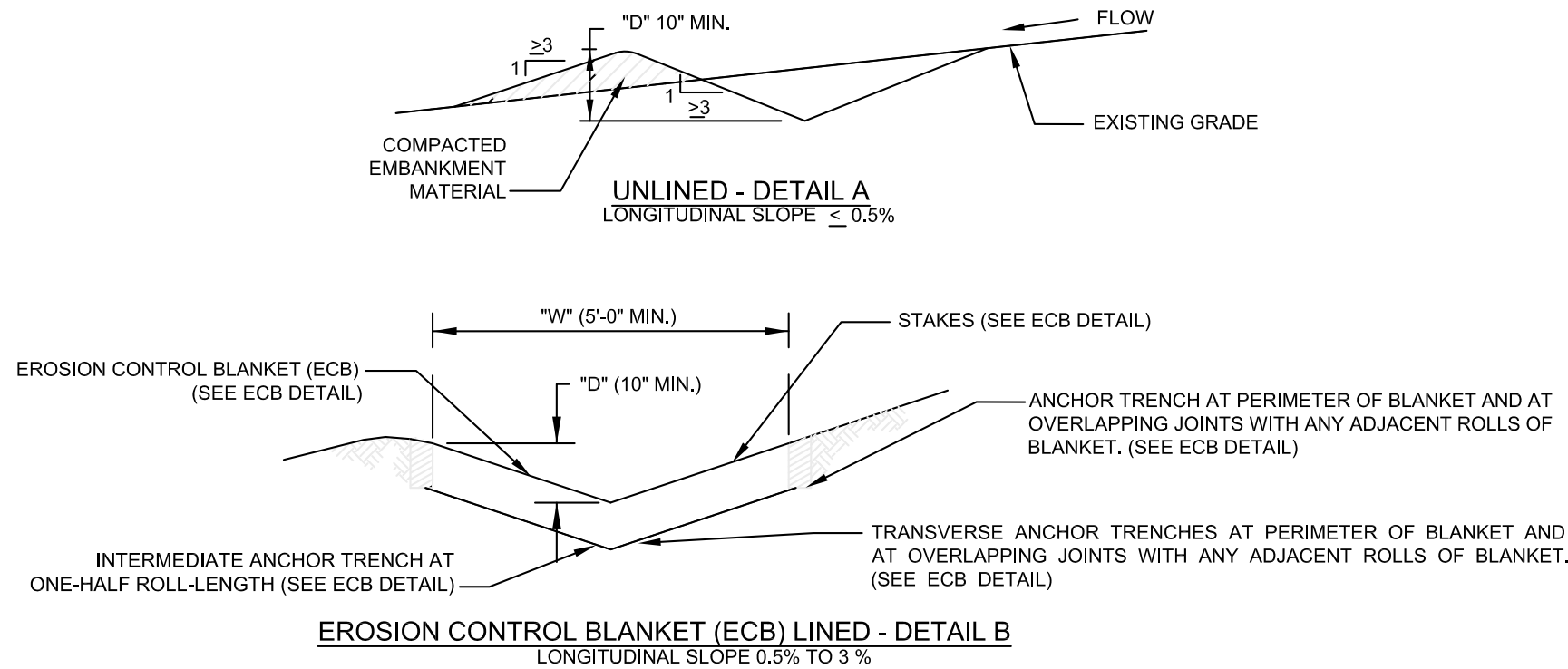
- REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.
- STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.
- STORM SEWER INLET PROTECTION IS TO BE IN PLACE, INSPECTED, AND CLEANED IF NECESSARY.
- OTHER ASSOCIATED SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED TO ENSURE GOOD WORKING CONDITION.

INSTALLATION REQUIREMENTS

- SEE GEC FOR:
  - LOCATION, LENGTH AND WIDTH OF SEDIMENT TRAP.
- SEDIMENT TRAPS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
- SEDIMENT TRAP BERM SHALL BE CONSTRUCTED FROM MATERIAL FROM EXCAVATION. THE BERM SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
- RIPRAP OUTLET SHALL BE CONSTRUCTED WITH D<sub>50</sub>=12" RIPRAP WITH A MINIMUM OVERFLOW OF 6".
- THE TOP OF THE EARTHEN BERM SHALL BE A MINIMUM OF 6" HIGHER THAN THE TOP OF THE RIPRAP OUTLET STRUCTURE.
- THE ENDS OF THE RIPRAP OUTLET STRUCTURE SHALL BE A MINIMUM OF 6" HIGHER THAN THE CENTER OF THE OUTLET STRUCTURE.

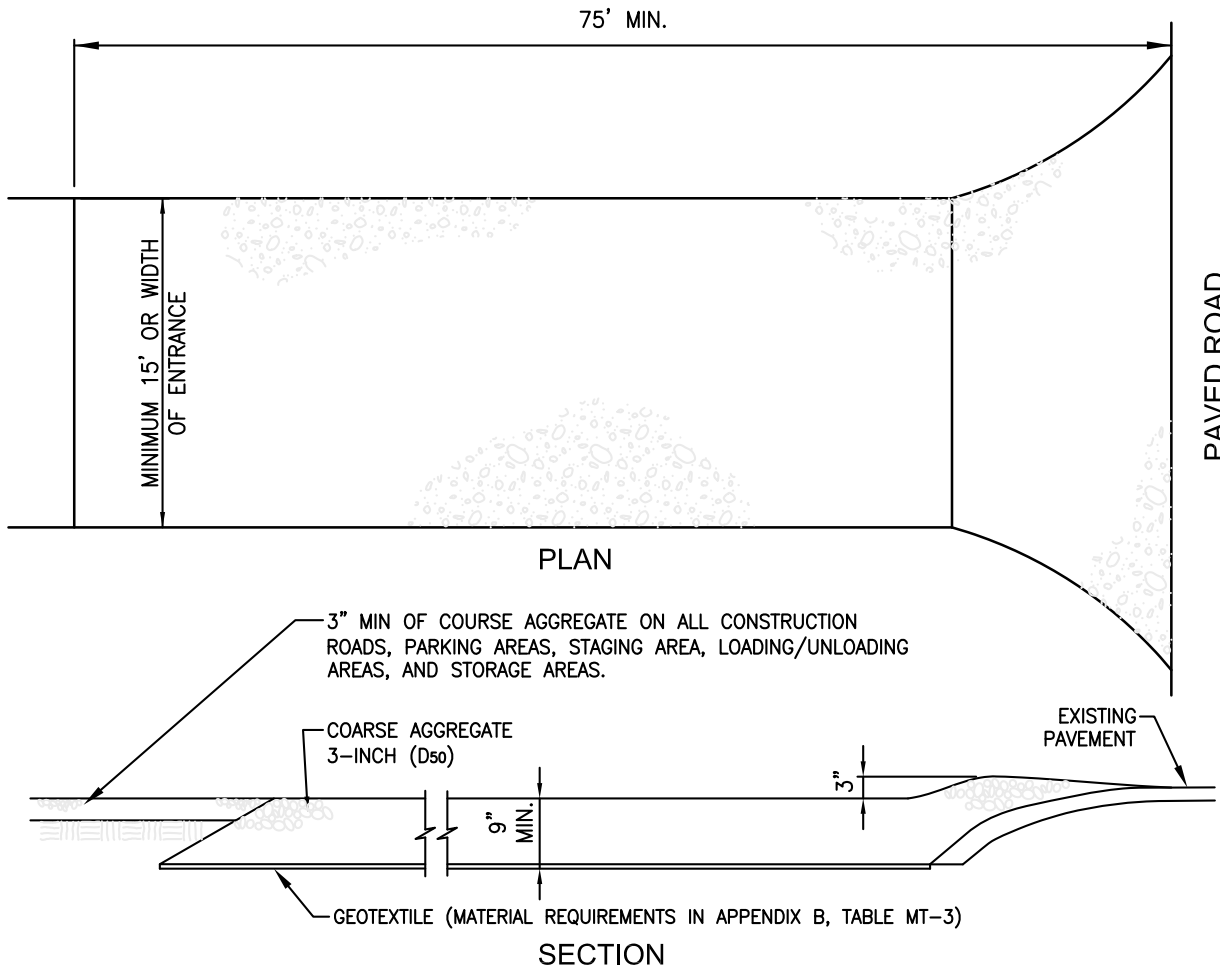
MAINTENANCE REQUIREMENTS

- THE GESC MANAGER SHALL INSPECT THE SEDIMENT TRAPS WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF RIPRAP SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN HALF THE HEIGHT OF THE RIPRAP OUTLET STRUCTURE.
- SEDIMENT TRAPS SHALL REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVERAGE IS APPROVED BY THE COUNTY.
- WHEN SEDIMENT TRAPS ARE REMOVED THE DISTURBED AREA SHALL BE DRILLED, SEEDED AND CRIMP MULCHED OR STABILIZED IN A MANNER APPROVED BY THE COUNTY.



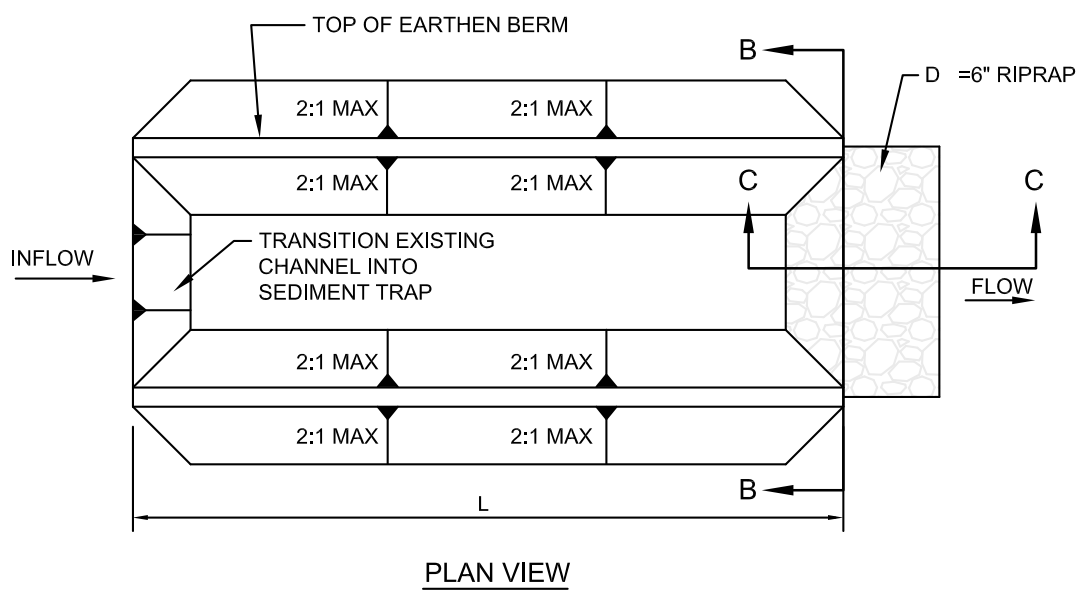
TEMPORARY DIVERSION DIKE  
NTS

TDD



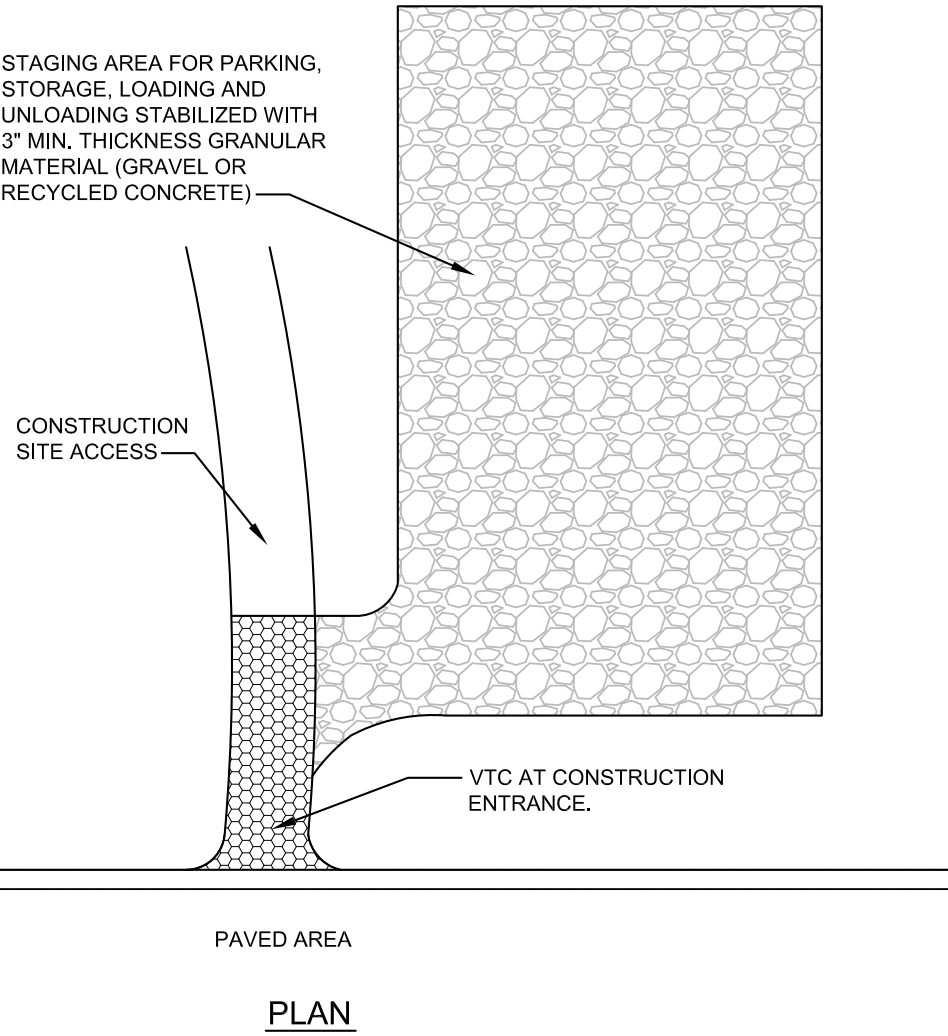
VEHICLE TRACKING CONTROL  
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VTC



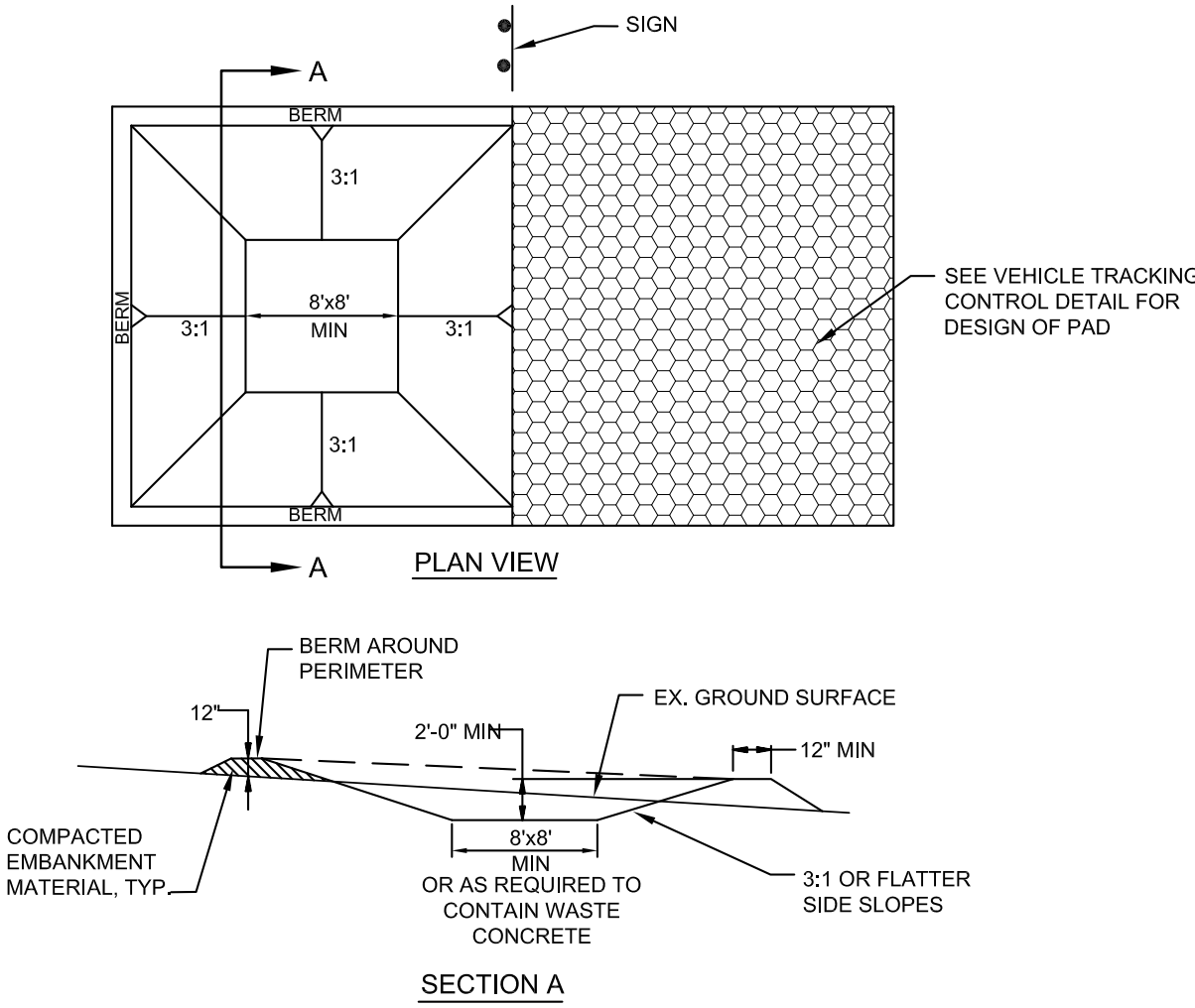
SEDIMENT TRAP  
NTS

ST



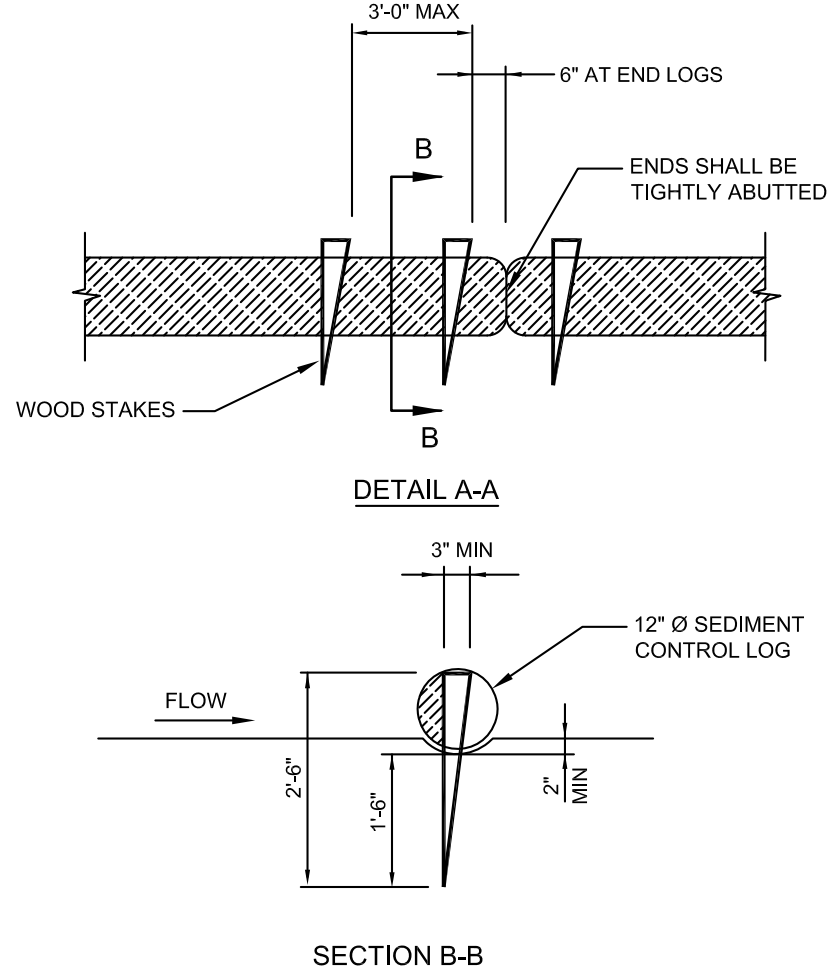
STABILIZED STAGING AREA  
NTS

SSA



CONCRETE WASHOUT AREA  
NTS

CWA



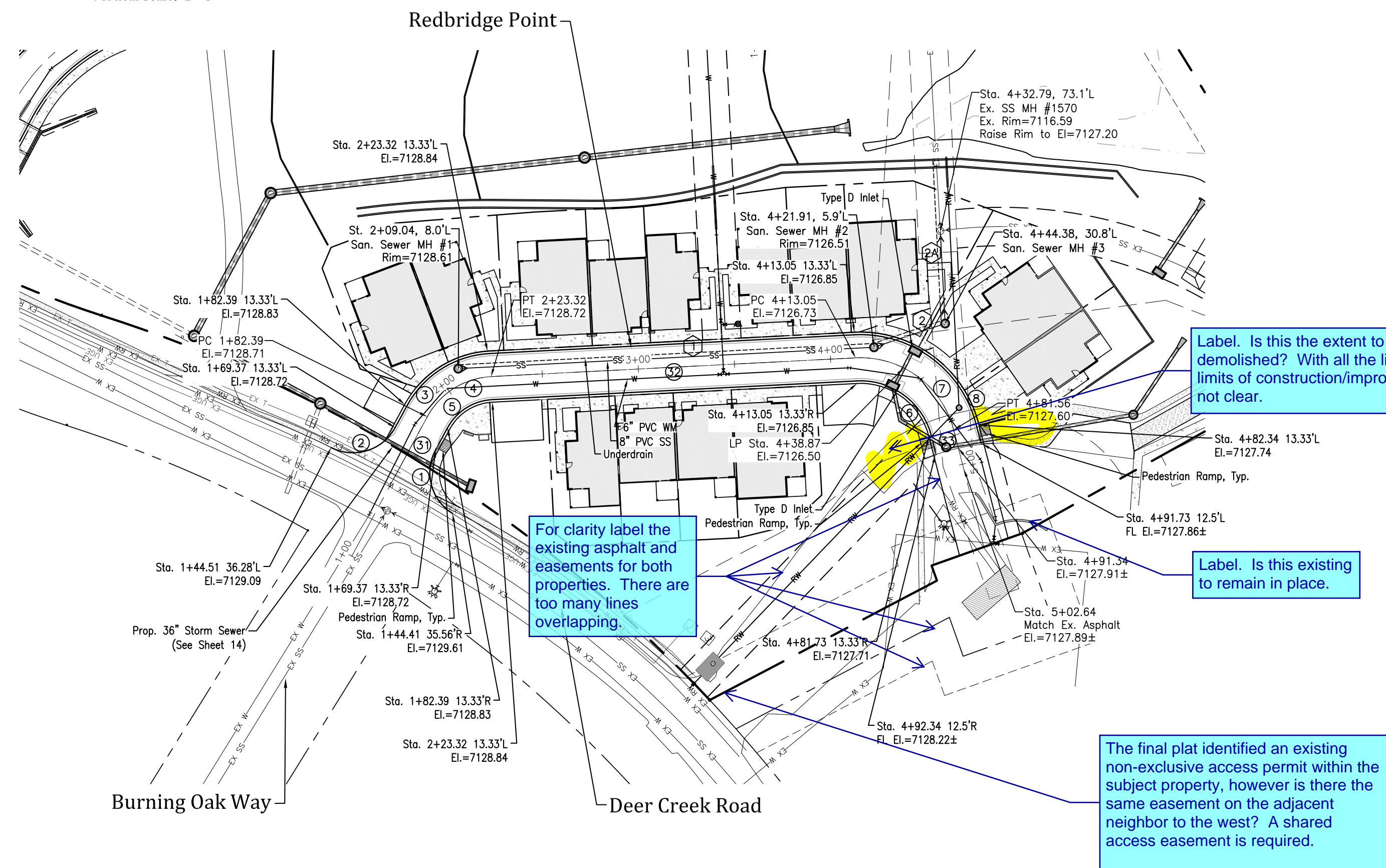
SEDIMENT CONTROL LOG  
NTS

SCL

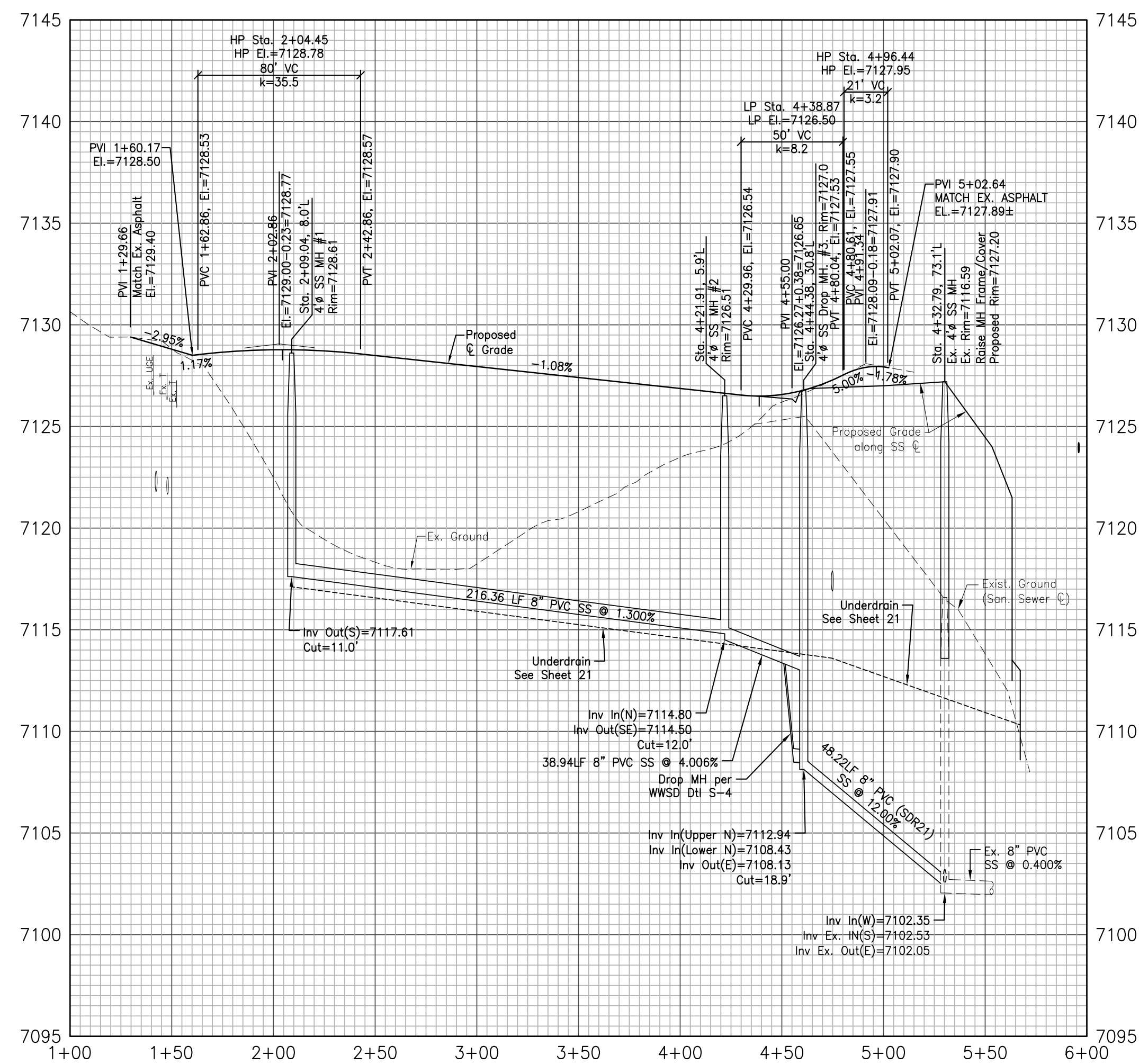
NOTE:

DETAILS SHOWN MAY NOT BE REQUIRED FOR THIS PROJECT. REFER TO GRADING AND EROSION CONTROL PLAN. ANY CHANGES SHALL BE COORDINATED WITH EL PASO COUNTY ENGINEERING DIVISION INSPECTIONS

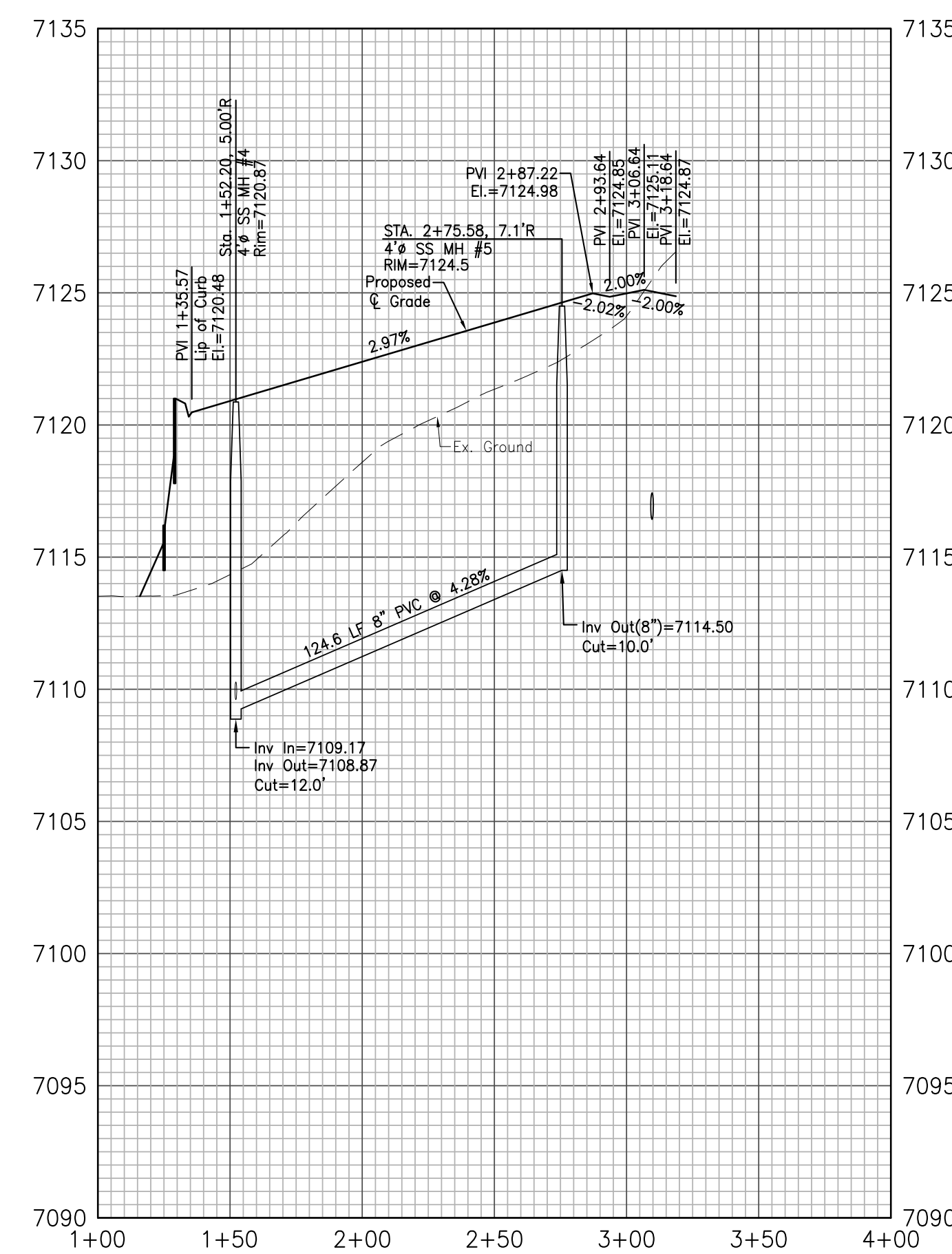
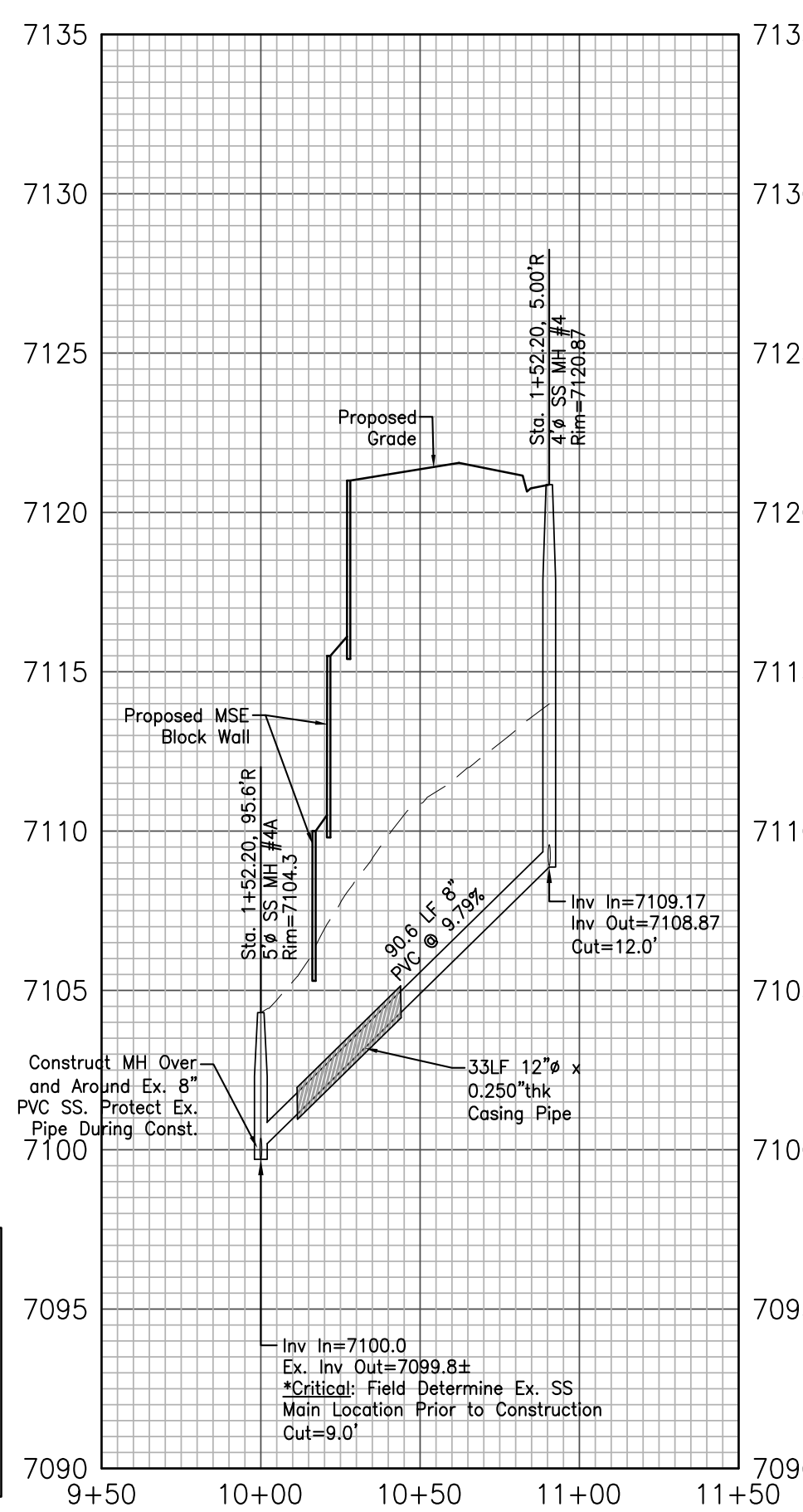




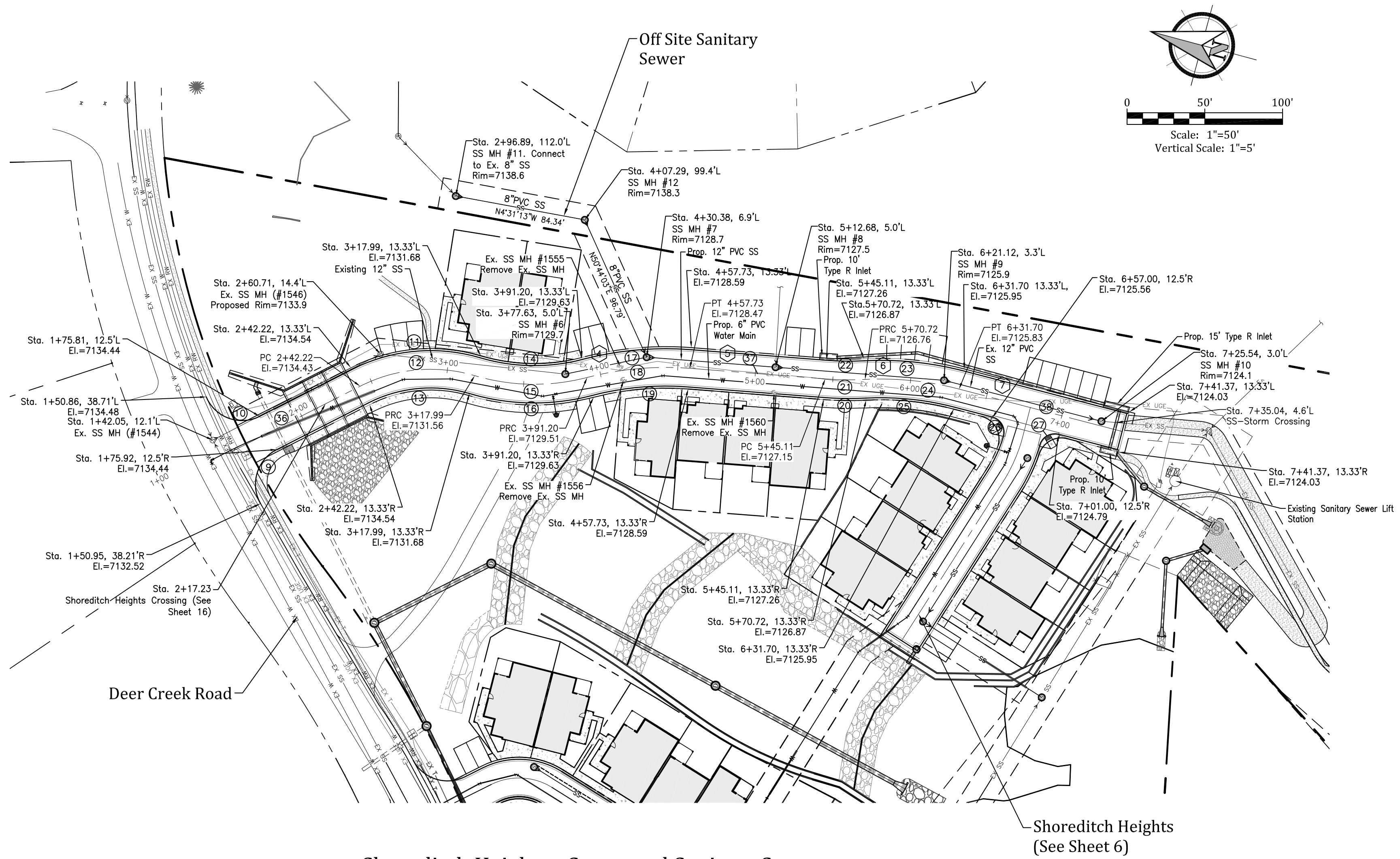
ROAD LINE DATA	
(31) S41°33'41"E L=82.39'	(34) S72°26'54"E L=155.86'
(32) S17°03'30"W L=189.73'	(35) N89°34'52"E L=31.42'
N4°26'01"W L=62.84'	



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Shoreditch Heights - Street and Sanitary Sewer

ROAD LINE DATA	
36 S41°57'04"E L=142.22'	38 S07°25'08"E L=47.34'
37 S10°33'12"E L=87.37'	

SANITARY SEWER LINE DATA	
Bearing	Distance
4 S26°43'53"E	53.40'
5 S10°33'12"E	83.16'
6 S10°33'12"E	108.64'
7 S07°25'08"E	104.59'

ROAD CURVE DATA	
9 Δ=92°46'21" R=25.00' L=40.48'	19 Δ=19°03'33" R=188.00' L=62.54'
10 Δ=93°54'53" R=25.00' L=40.98'	20 Δ=72°0'13" R=212.00' L=27.15'
11 Δ=43°24'40" R=112.00' L=84.86'	21 Δ=72°0'13" R=200.00' L=25.61'
12 Δ=43°24'40" R=100.00' L=75.77'	22 Δ=72°0'13" R=188.00' L=24.07'
13 Δ=43°24'40" R=86.00' L=66.67'	23 Δ=17°28'17" R=212.00' L=64.65'
14 Δ=31°04'21" R=123.00' L=66.70'	24 Δ=17°28'17" R=200.00' L=60.99'
15 Δ=31°04'21" R=135.00' L=73.21'	25 Δ=17°28'17" R=188.00' L=57.33'
16 Δ=31°04'21" R=147.00' L=79.72'	26 Δ=91°53'45" R=10.00' L=16.04'
17 Δ=19°03'33" R=212.00' L=70.52'	27 Δ=88°47'17" R=10.00' L=15.50'
18 Δ=19°03'33" R=200.00' L=66.53'	

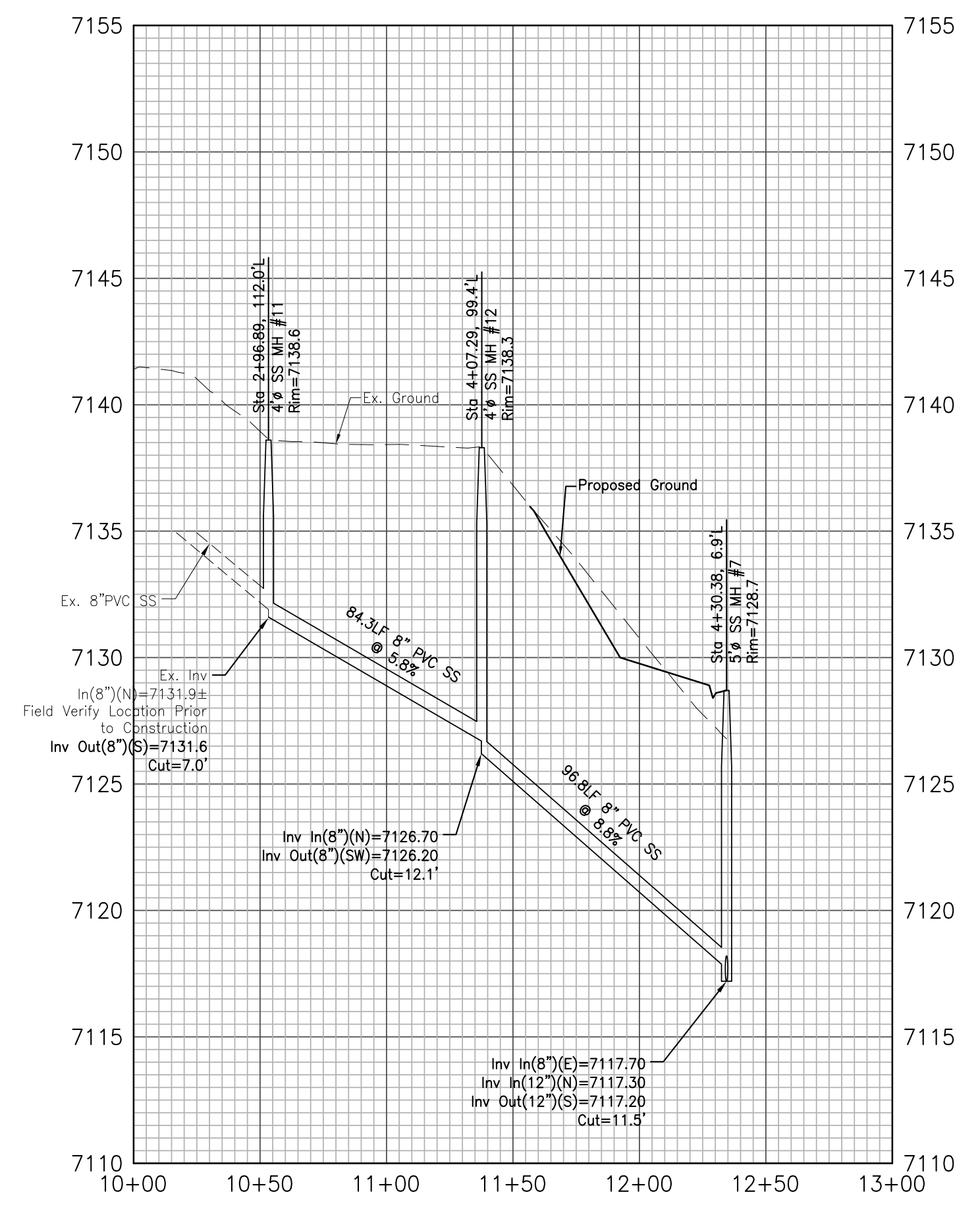


WOODMOOR WATER & SANITATION DISTRICT NO. 1  
APPROVED FOR CONSTRUCTION

Date: \_\_\_\_\_ By: \_\_\_\_\_

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Shoreditch Heights - Off Site Sanitary Sewer



# North Bay at Lake Woodmoor

## Shoreditch Heights --- Plan and Profile

El Paso County, Colorado

Project No.:	15073
Date:	September 4, 2018
Design:	NRK
Drawn:	CAD
Checks:	MWE
Revisions:	



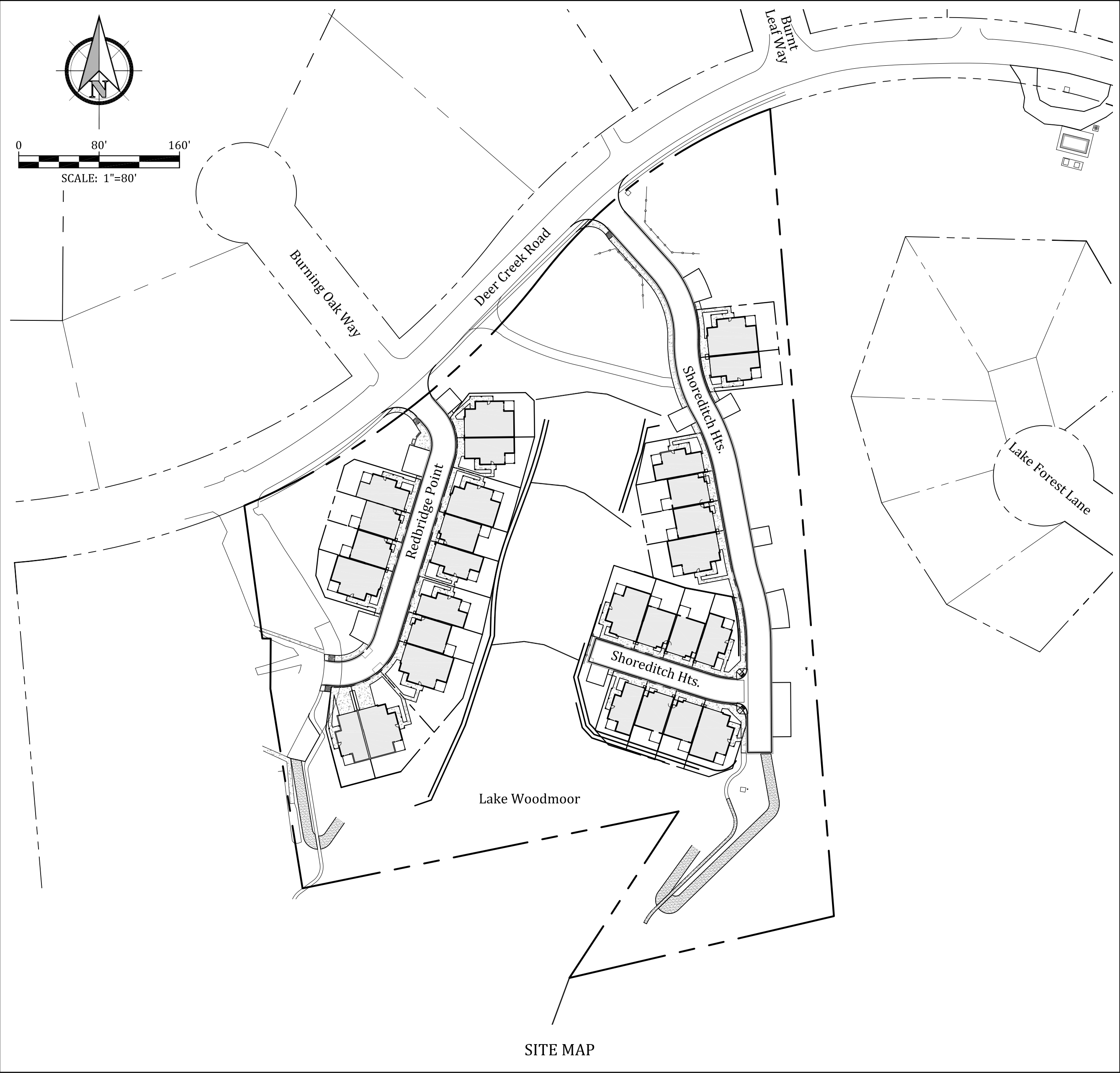
North Bay at Lake Woodmoor  
EL PASO COUNTY, COLORADO  
PUBLIC WATER SYSTEM PLAN AND PROFILES  
INCLUDING UTILITY SERVICES

GENERAL NOTES:

- All materials and installation procedures will be in compliance with the System Specifications and the Rules and Regulations of the District.
- Developer/Owner or Contractor shall be responsible for determining and obtaining any and all permits required to perform the work from all applicable regulatory agencies or entities having jurisdiction, and will perform the work in accordance with any and all applicable ordinances, regulations, laws and permits issued by such entities or agencies.
- Contractor shall pothole and field verify elevations, pipe size, type, alignment, etc. of existing water lines at all noted connection points to the District's system.
- In case of conflict between these plans and the system specifications, consult the District prior to commencing work.
- Contractor shall notify the District a minimum of 2 working days prior to performing scheduled tests for observation by District personnel.
- Bypass pumping of existing sewer flows is required when connecting to the District's existing sewer system. Contractor shall provide 100% redundant pumping capacity with continuous supervision during pumping operations. Contractor shall coordinate timing, location, etc. of bypass pumping operations with the District prior to commencing pumping operations.
- The horizontal control is the state plane coordinate system, Colorado Central Zone (NAD 83). Coordinates of the two temporary benchmarks are noted below and on the plan.
- Benchmarks: NGS Benchmark "T 395" -- Elevation = 7111.32 (NAVD 1988)  
TBM#1 Northwest Property Corner (N1,462,260.00, E3,181,465.66) Elevation=7101.48  
TBM#2 Southeast Property Corner (N1,460,800.42, E3,181,738.69) Elevation=7049.84

WATER AND SEWER SERVICE LINE NOTES:

- Sewer service tap connections will be located a minimum of five (5) feet away from any manhole and be installed at the main with a gasket wye or tee fitting for new installations of sewer main. For service tap connections to existing sewer mains a sewer service saddle tap may be installed.
- Sewer service lines/stubs will be installed such that a sewer service clean out is located 5 feet into the property or centered in the front lot easement, whichever is less and be located a minimum of 10 feet away from any side lot line. Tracer wire from the sewer tap at the main to the clean out at the property line shall be installed and a metal tee post will be installed next to the clean out for protection and ease of location.
- A minimum of 10 feet of horizontal separation must be maintained between water service lines and sewer service lines
- Water service lines/stubs will be 3/4-inch in diameter unless otherwise noted and installed such that the curb stop is located 5 feet into the property or centered in the front lot easement, whichever is less and a minimum of 10 feet from any sewer service line/sewer clean out.
- Curb stops and boxes shall be buried such that 6-feet (+/- 0') of cover exists as measured from finished grade to the top of the service line. A metal tee post will be installed at the curb stop box for protection and ease of location.
- Water service taps will not be located on a fire hydrant lateral or within 30" from a pipe bell, valve or mechanical joint connection. Water taps will maintain minimum five (5) foot spacing from other taps on the water main.
- Direct tapping of water service line corporation stops (i.e. no saddle) will not be permitted.



INDEX OF SHEETS

- |    |  |
|----|--|
| 8  | Public Water System Plan & Profiles--Cover Sheet           |
| 9  | Utility Plan   |
| 10 | Utility Services Plan                                      |
| 11 | Water Plan and Profile - Redbridge Pt. and Shoreditch Hts. |
| 12 | Water Plan and Profile - Redbridge Pt. and Shoreditch Hts. |

**PRE-EXCAVATION CHECKLIST**

☐ GAS AND OTHER UTILITY LINES OF RECORD SHOWN ON PLANS.

☐ UTILITIES CENTRAL LOCATING CALLED AT LEAST 2 BUSINESS DAYS AHEAD.

☐ UTILITIES LOCATED AND MARKED.

☐ EMPLOYEES BRIEFED ON MARKING AND COLOR CODES.\*

☐ EMPLOYEES TRAINED ON EXCAVATION AND SAFETY PROCEDURES FOR NATURAL GAS LINES.

☐ WHEN EXCAVATION APPROACHES GAS LINES, EMPLOYEES EXPOSE LINES BY CAREFUL PROBING AND HAND DIGGING.

\*A.G.A./A.P.W.A. STANDARD UTILITY MARKING COLOR CODE

NATURAL GAS	YELLOW	WATER	BLUE
ELECTRIC	RED	WASTEWATER	GREEN

**811**

Know what's below.  
Call before you dig.

WOODMOOR WATER & SANITATION DISTRICT NO. 1  
APPROVED FOR CONSTRUCTION

Date: \_\_\_\_\_ By: \_\_\_\_\_

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North Bay at Lake Woodmoor  
Utility Plan Cover Sheet  
El Paso County, Colorado

Project No.: 15073  
Date: September 4, 2018  
Design: NRK  
Drawn: CAD  
Check: MWE  
Revisions:

SHEET

8

OF 21 SHEETS

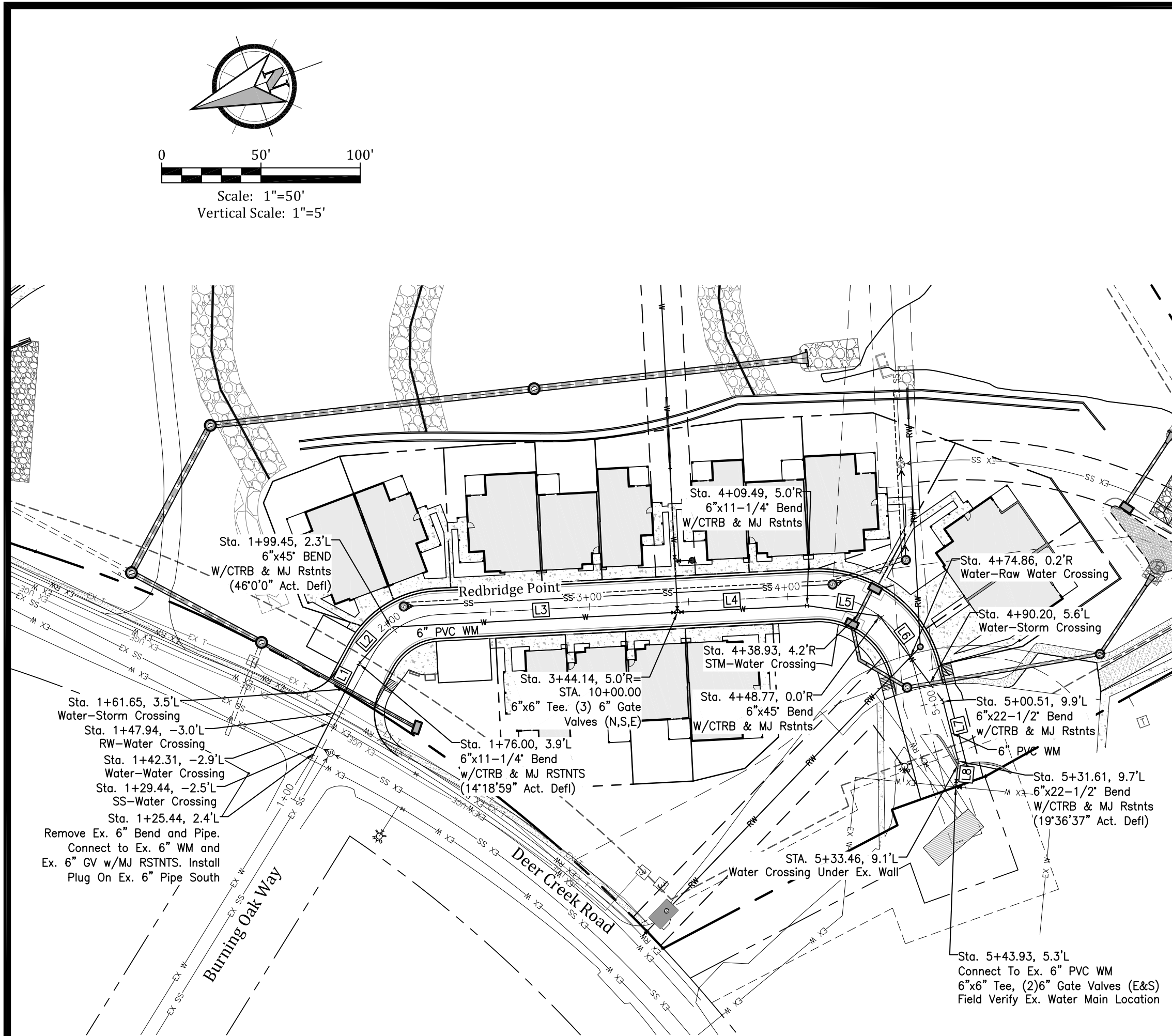




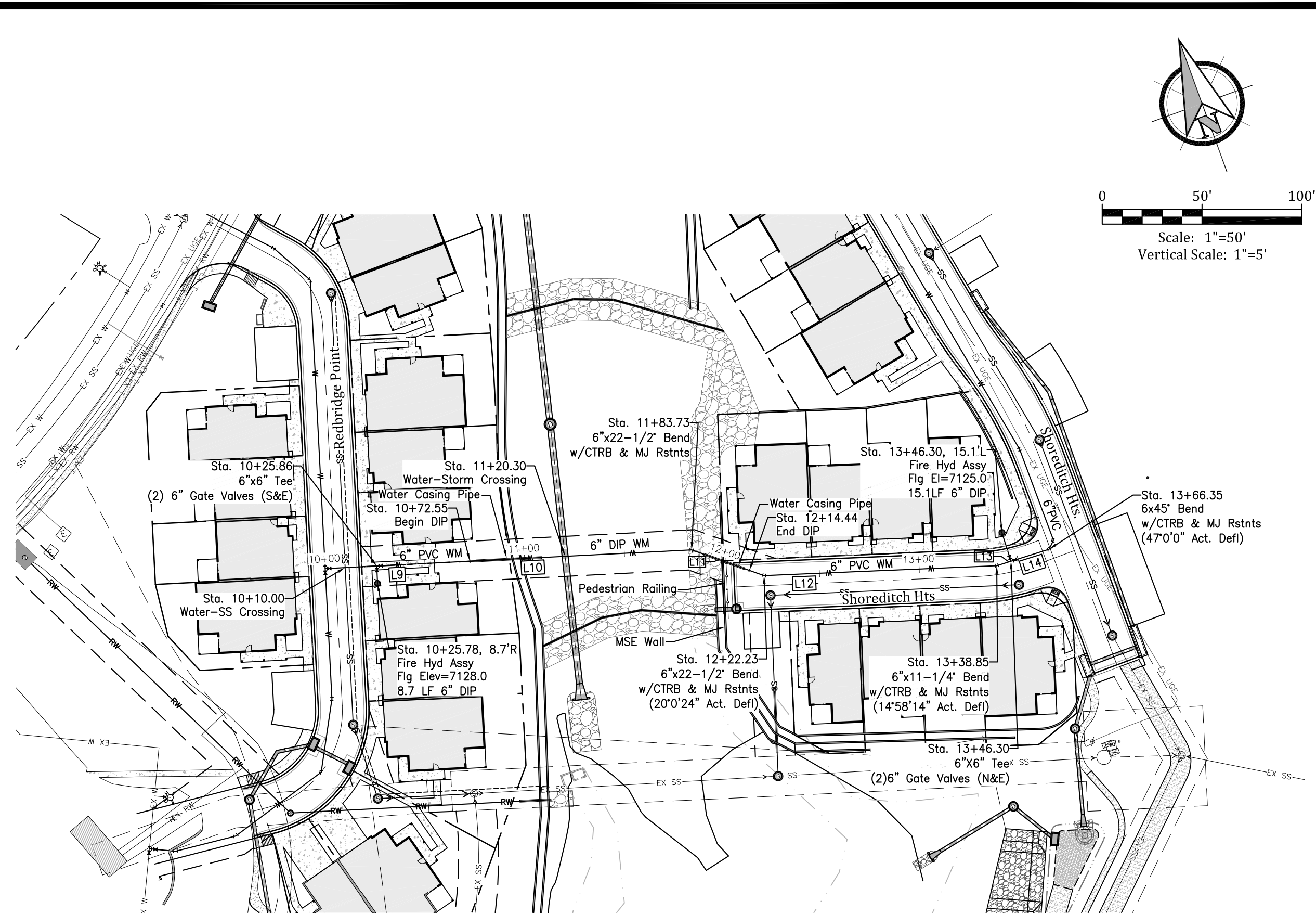




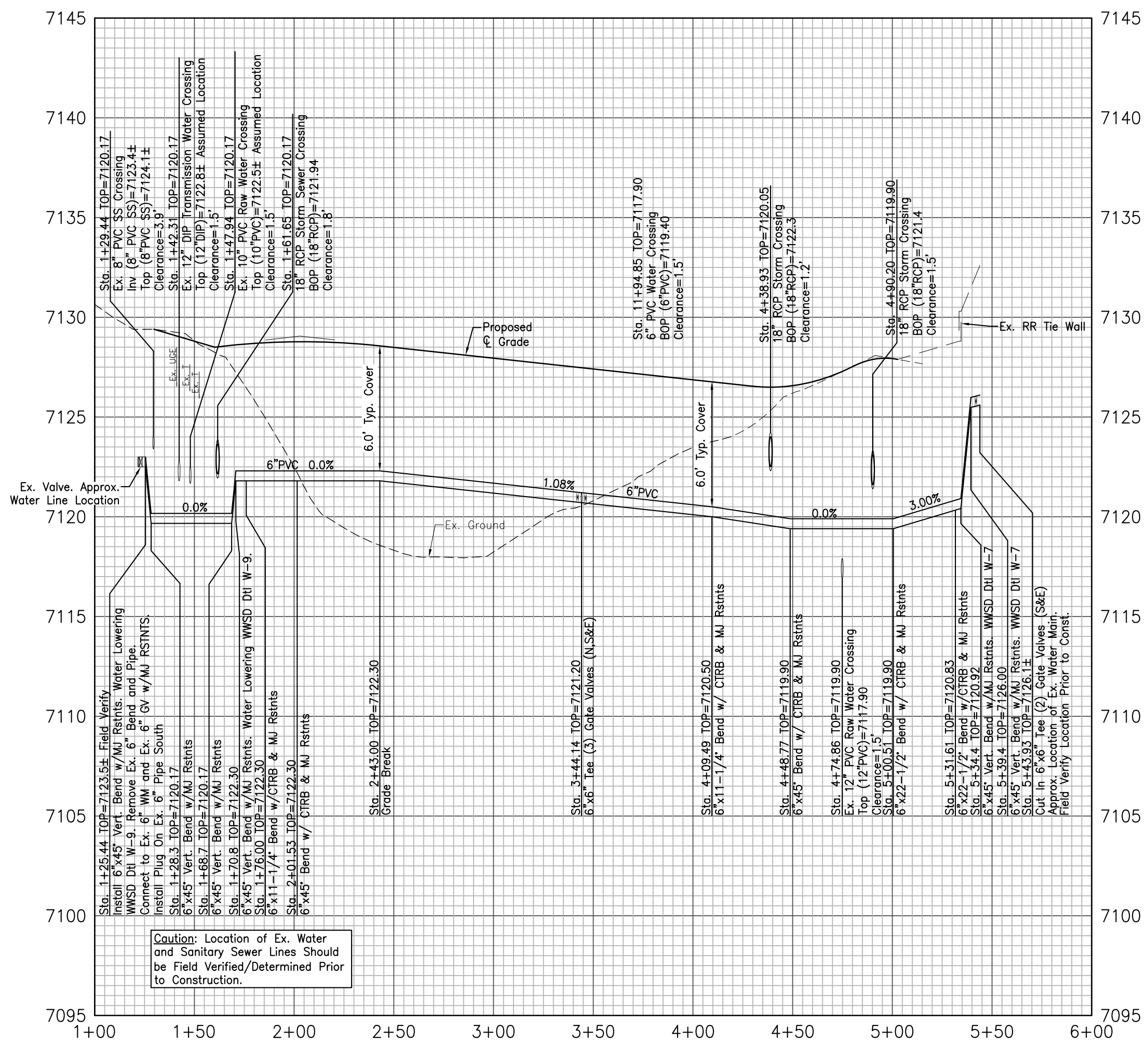




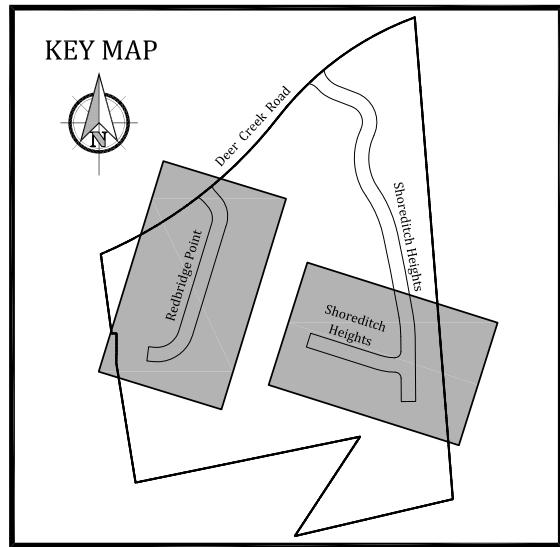
WATER LINE DATA		
LINE #	LENGTH	BEARING
L1	50.57	S43°15'28.54\"E
L2	24.49	S28°56'29.72\"E
L3	144.60	S17°03'30.28\"W
L4	65.36	S17°03'30.28\"W
L5	37.02	S28°18'30.28\"W
L6	53.42	S73°18'30.28\"W
L7	31.10	N84°11'29.72\"W
L8	13.10	N64°34'52.93\"W
L9	73.67	N72°56'29.72\"W
L10	110.07	N72°55'09.06\"W
L11	38.50	S50°26'29.72\"E
L12	116.62	N72°26'54.01\"W
L13	27.51	N87°25'08.20\"W
L14	27.51	N87°25'08.20\"W
L15	14.23	S41°57'04.18\"E
L16	98.33	N36°52'20.67\"W
L17	30.77	S15°28'53.48\"E
L18	59.71	S04°13'53.48\"E
L19	6.68	S24°43'53.48\"E
L20	71.93	S24°43'53.48\"E
L21	179.41	S10°33'12.28\"E
L22	48.58	S00°25'08.20\"E
L23	5.00	S45°34'51.80\"W



Redbridge Point - Water



- NOTES:
1. Refer to Plan view for actual angle at horizontal bends.
  2. Location of existing utilities has not been field determined. Contractor to determine location of existing utilities prior to construction.



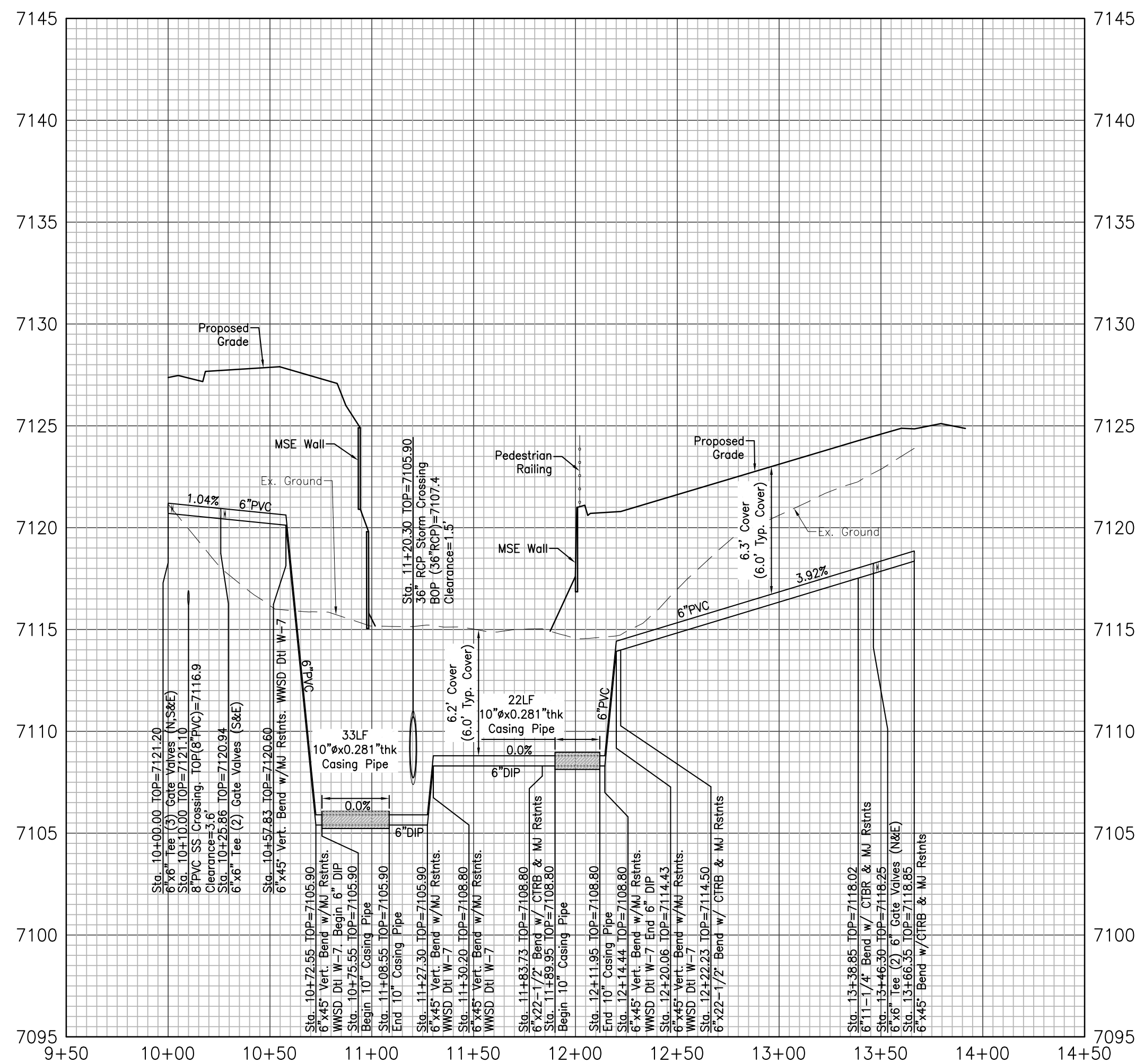
Know what's below.  
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WOODMOOR WATER & SANITATION DISTRICT NO. 1  
APPROVED FOR CONSTRUCTION

Date: \_\_\_\_\_ By: \_\_\_\_\_

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Shoreditch Heights - Water



North Bay at Lake Woodmoor  
Redbridge Point -- 6" Water Plan and Profile  
Shoreditch Heights -- 6" Water Plan and Profile  
El Paso County, Colorado

Project No.: 15073  
Date: September 4, 2018  
Design: NRK  
Drawn: CAD  
Check: MWE  
Revisions:

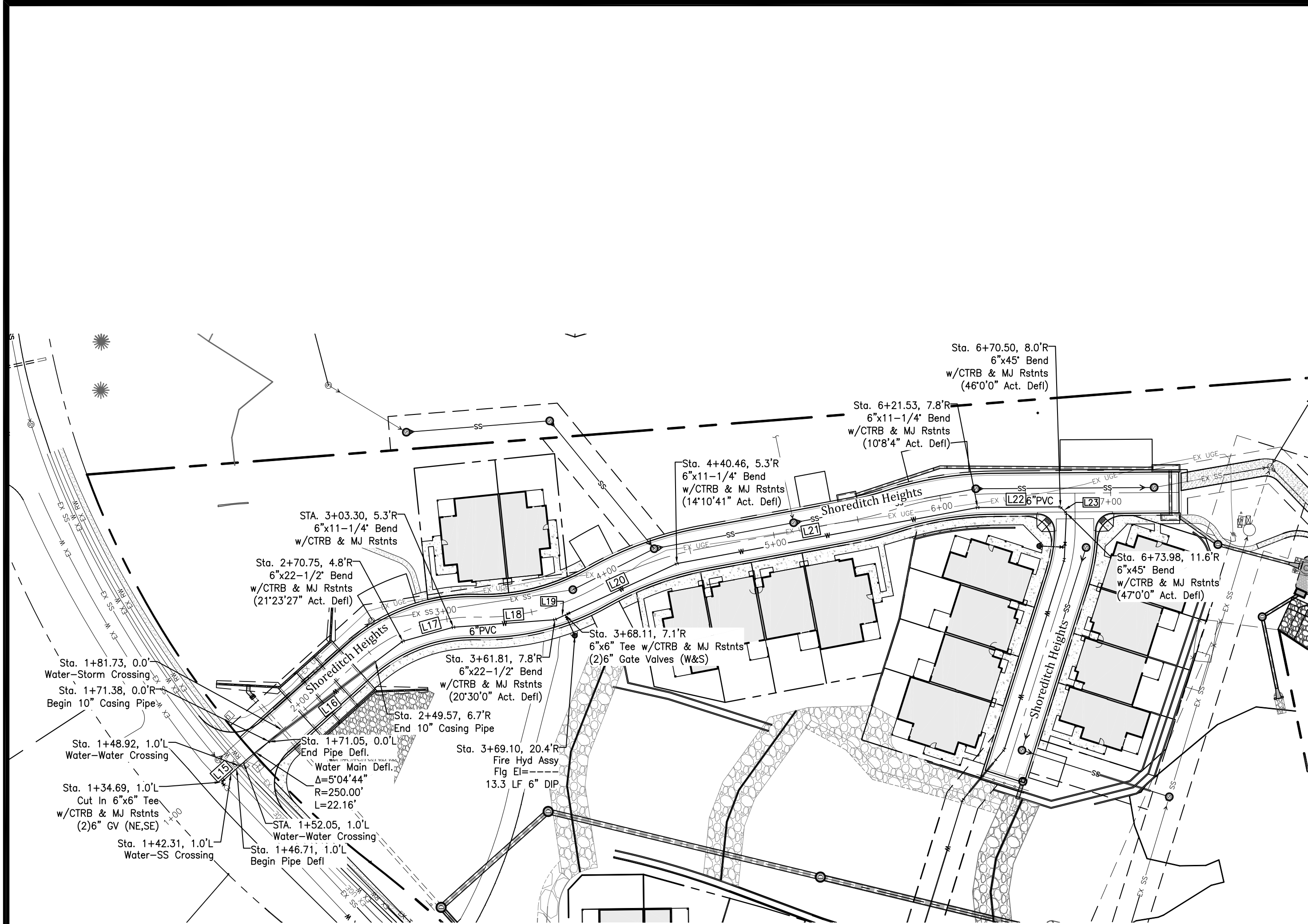
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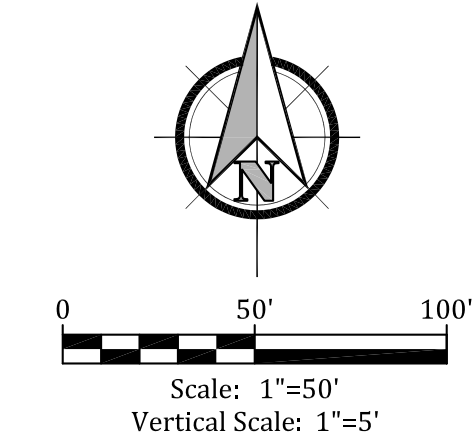
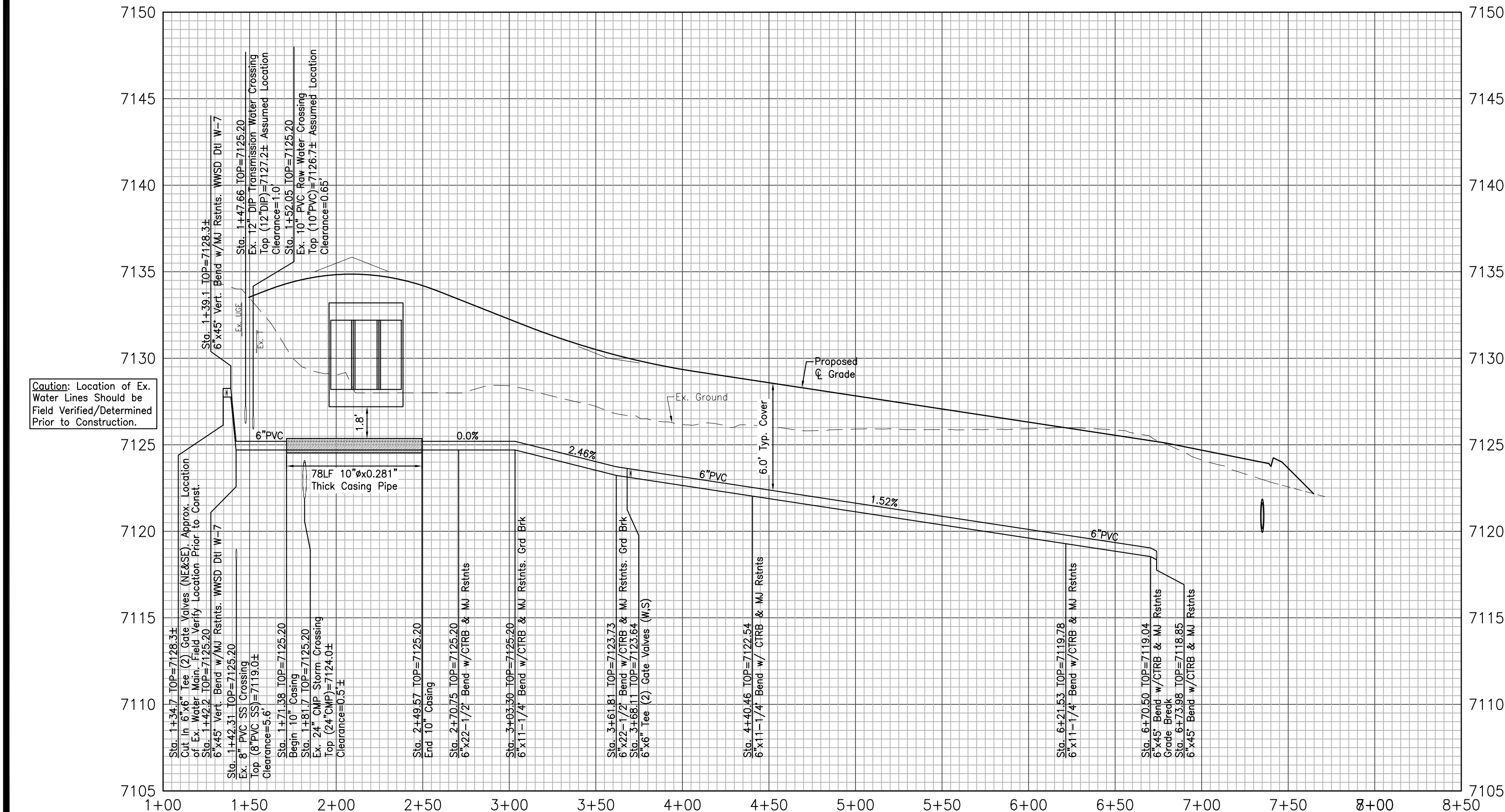
OF 21 SHEETS

Kiowa  
Engineering Corporation  
1604 South 21st Street  
Colorado Springs, Colorado 80904  
(719) 630-7342

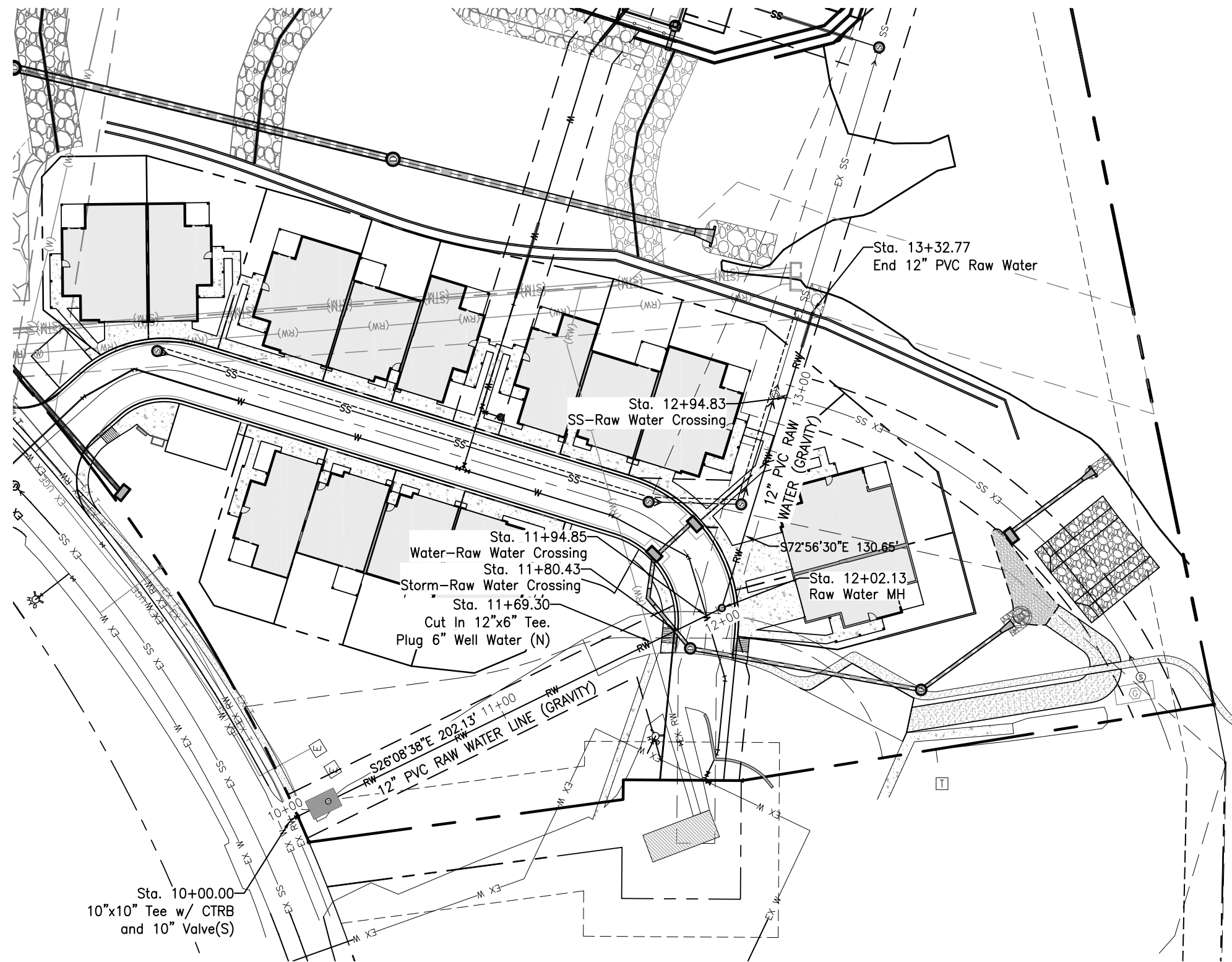




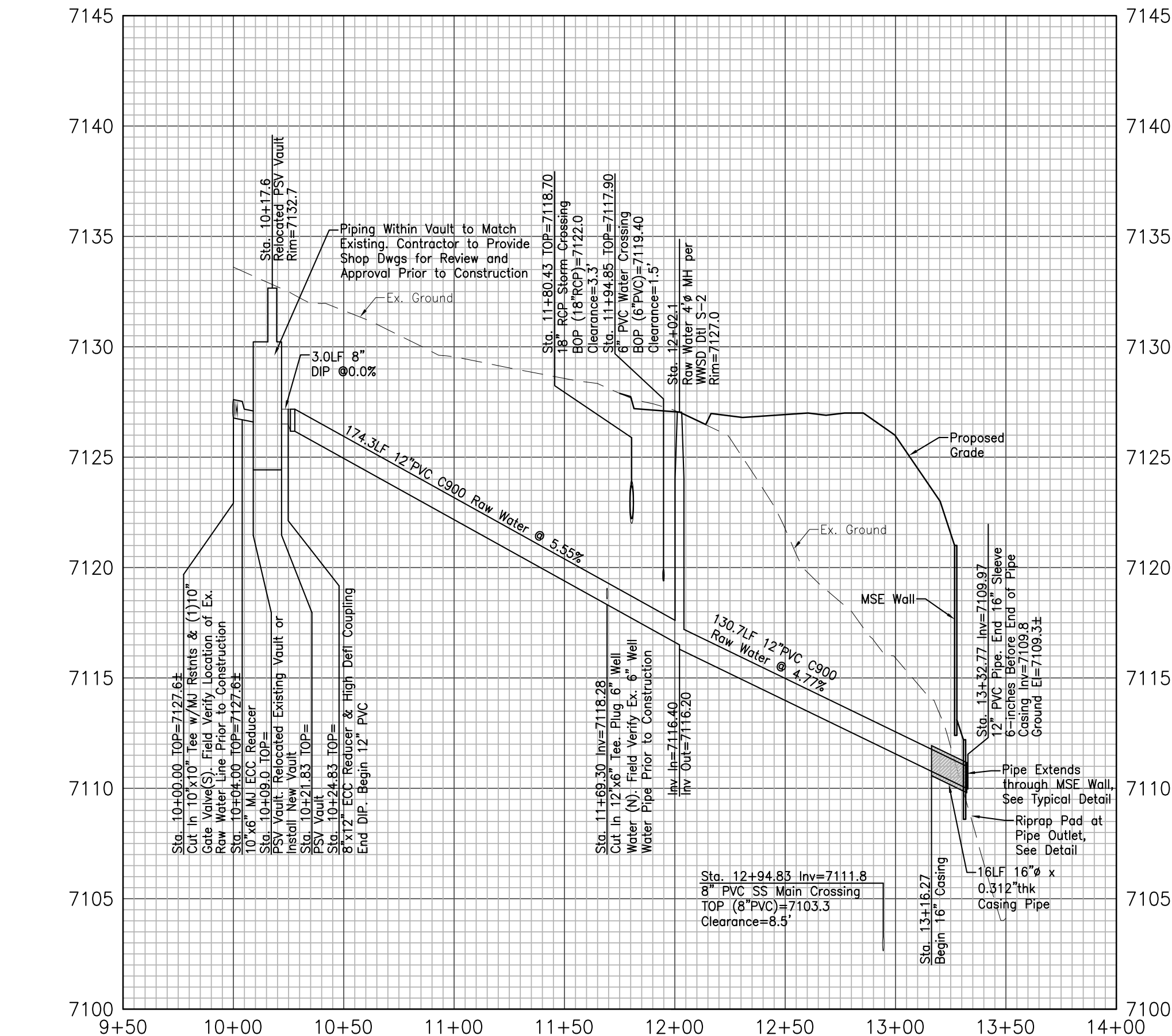
Shoreditch Heights - Water



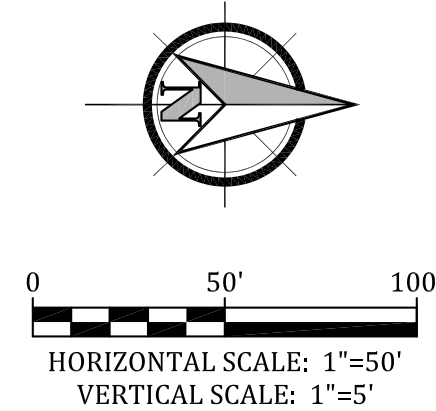
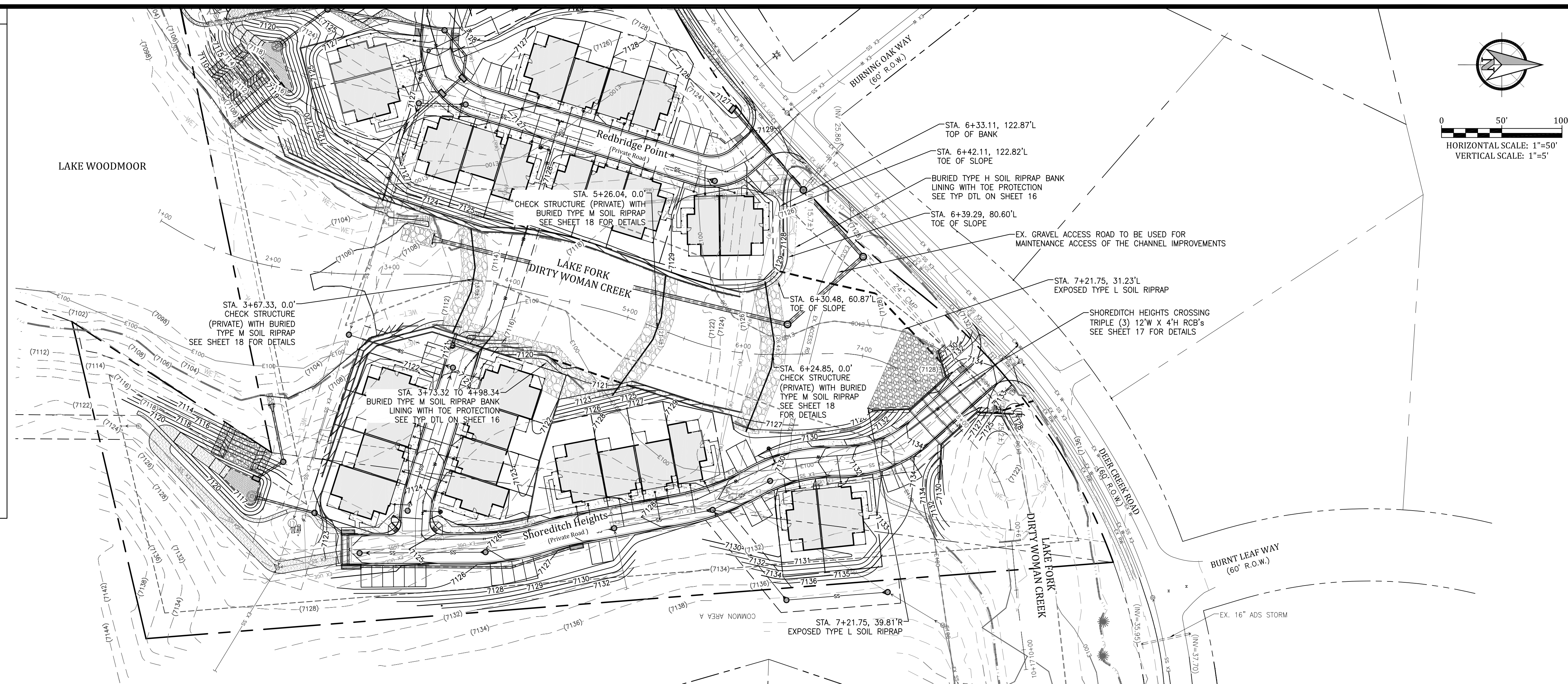
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L21	179.41	S10°33'12.28"E
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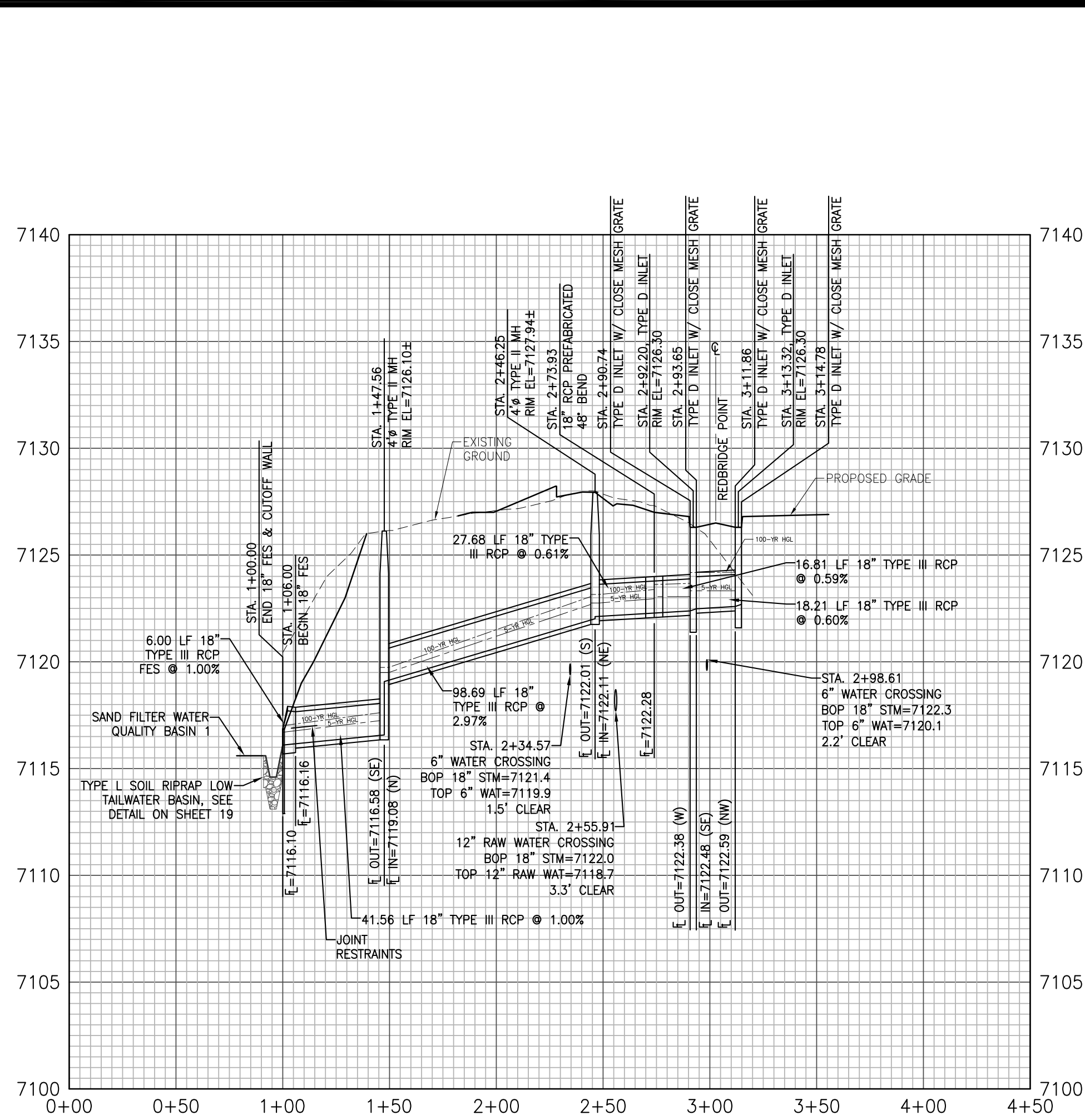
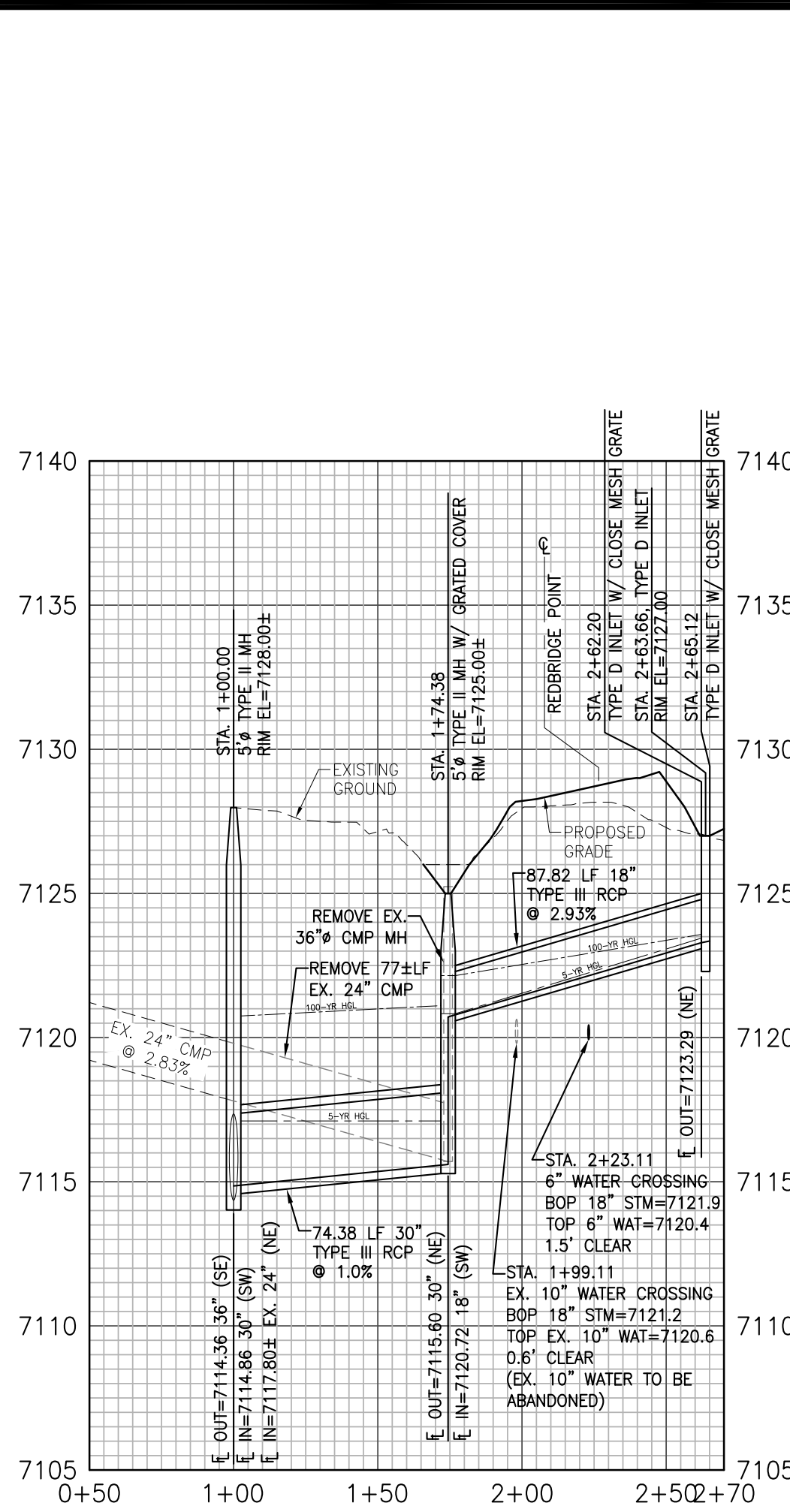
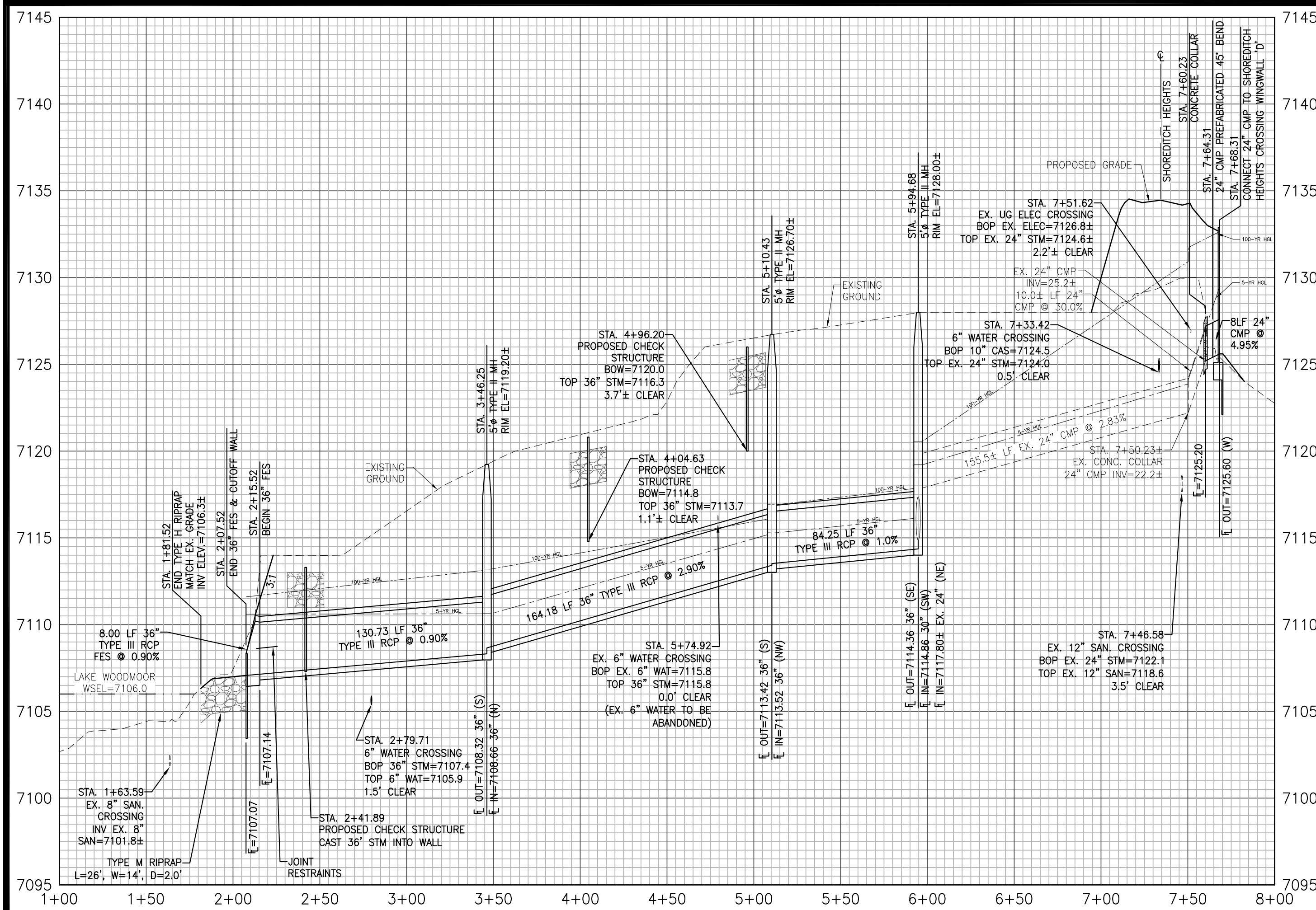
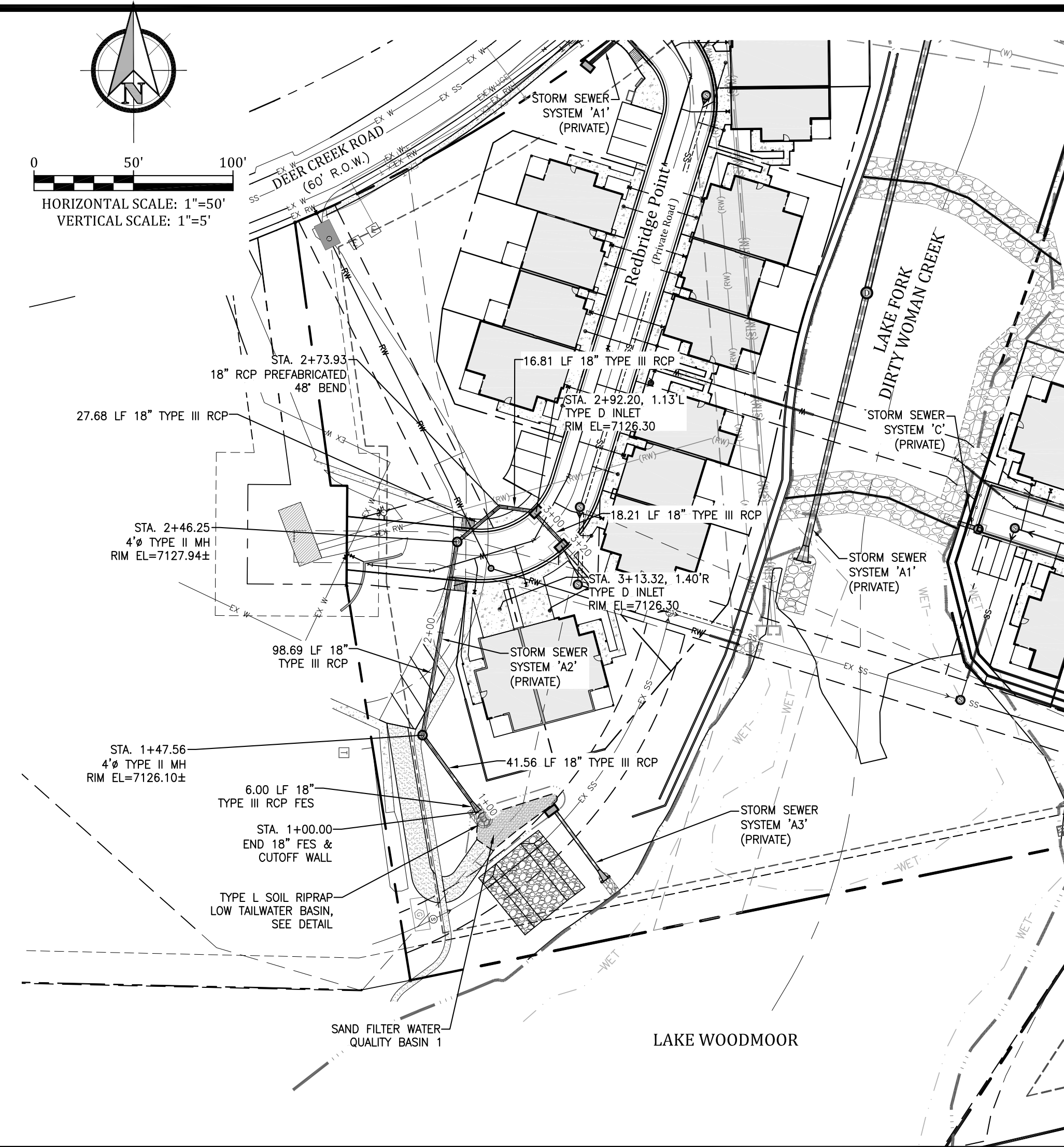
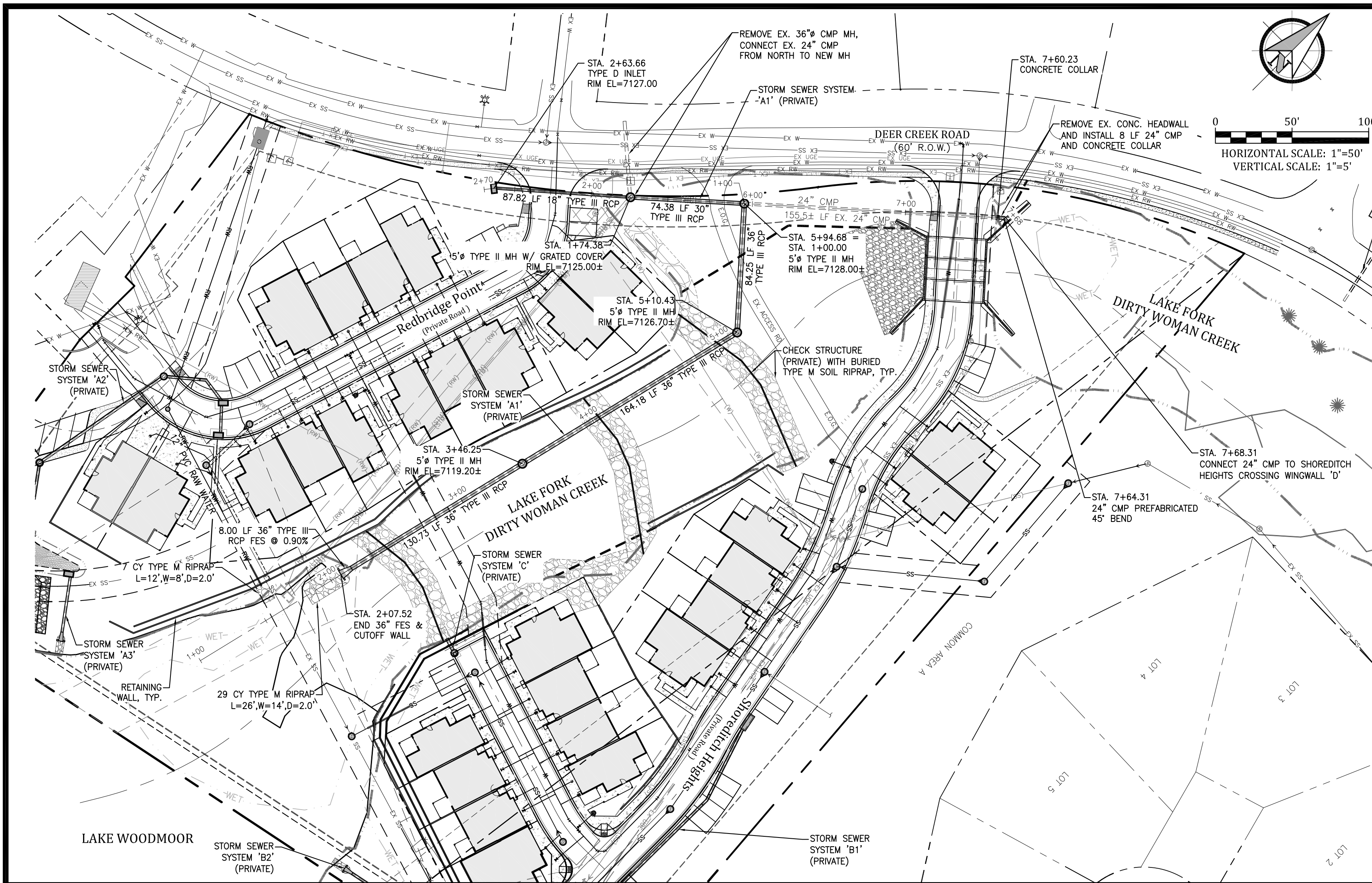
Pumped Water Storage Pipeline











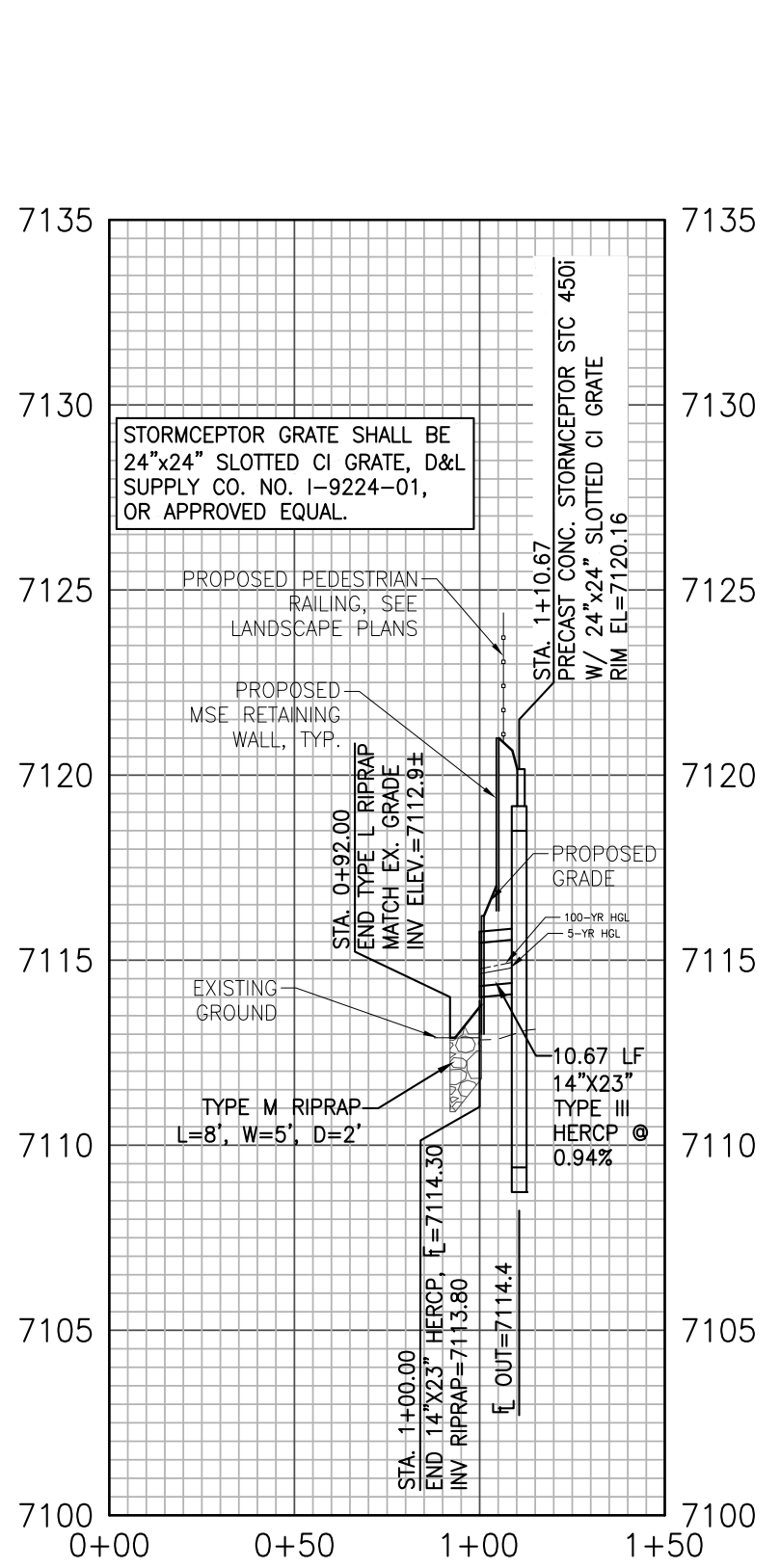
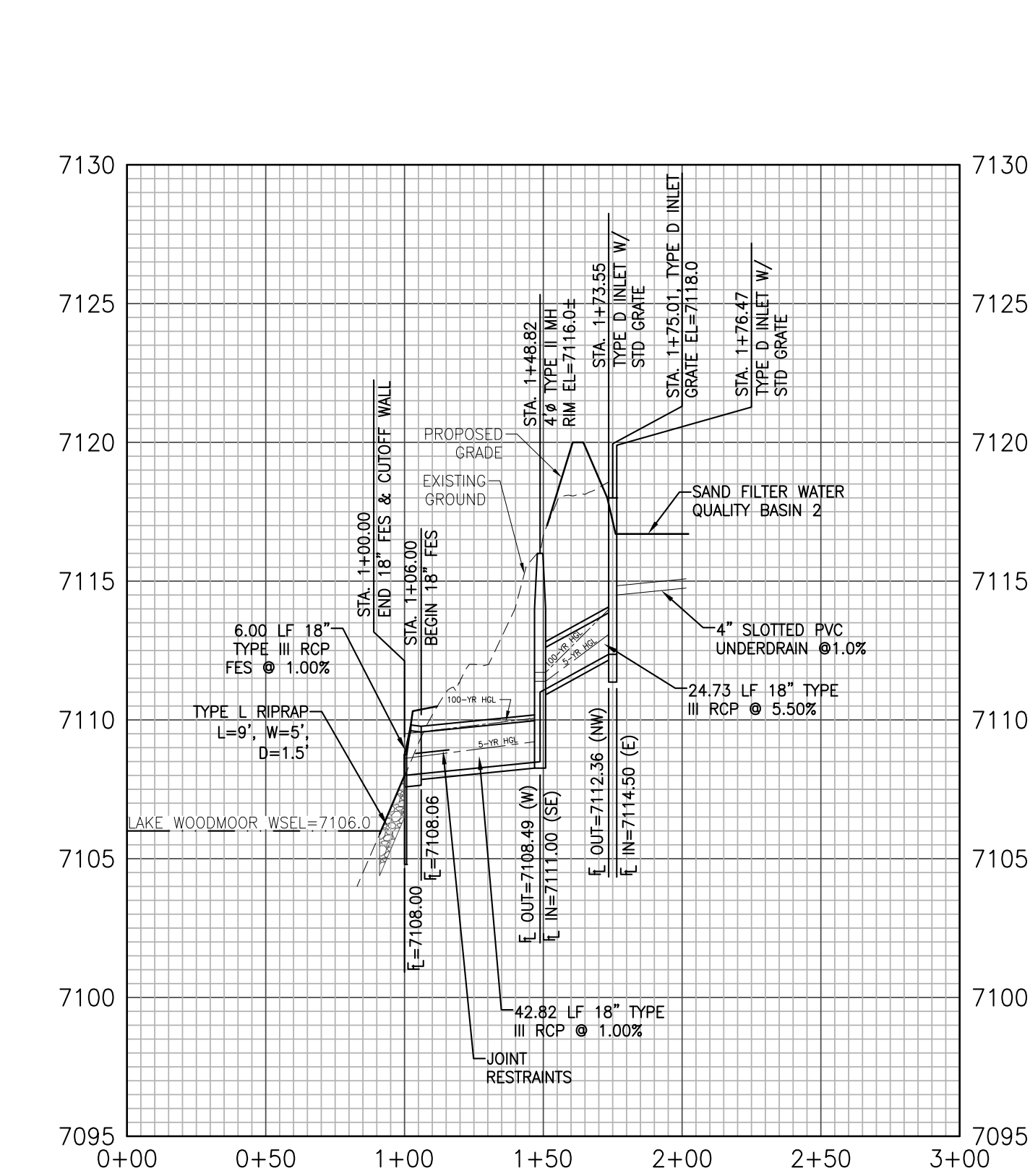
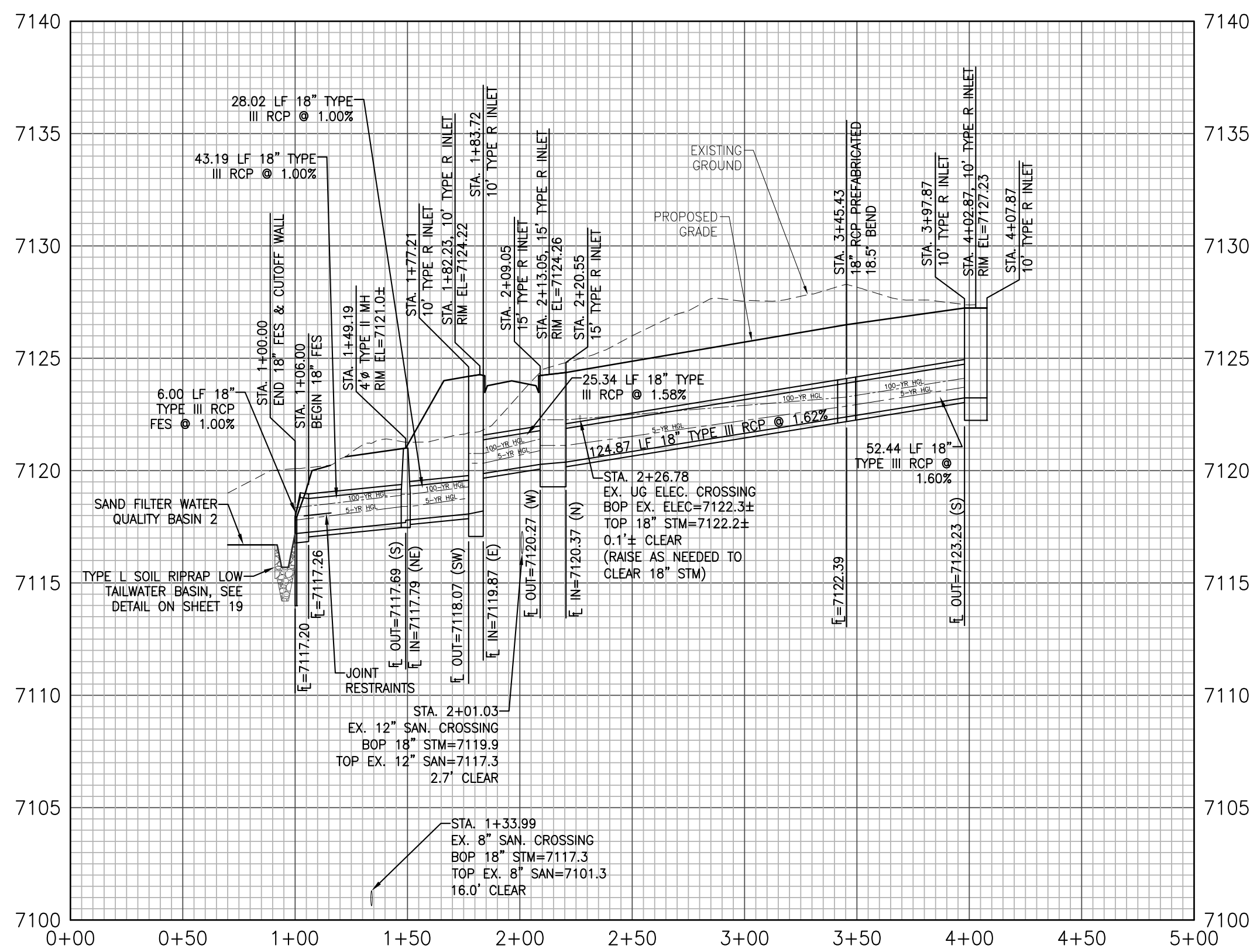
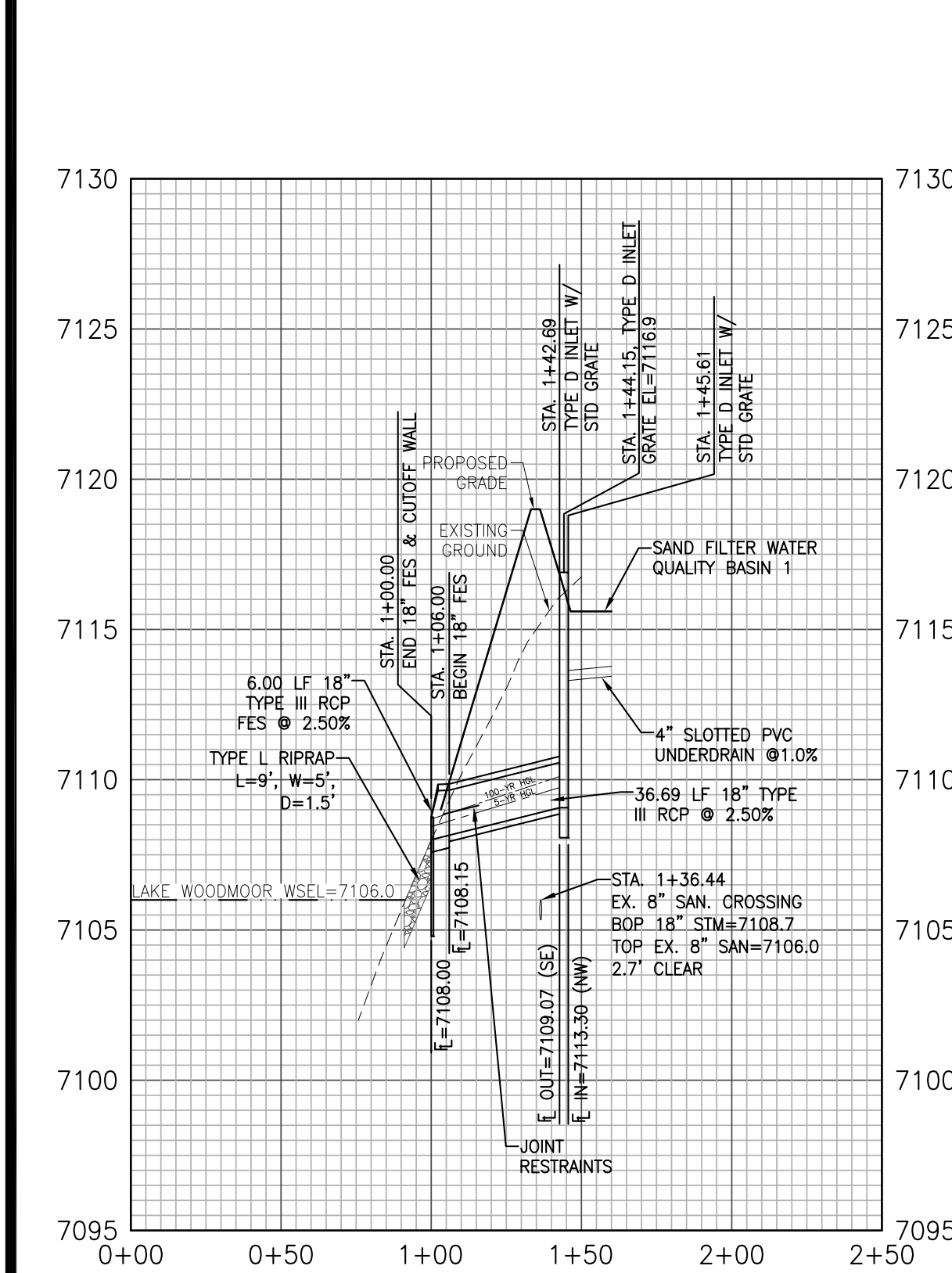
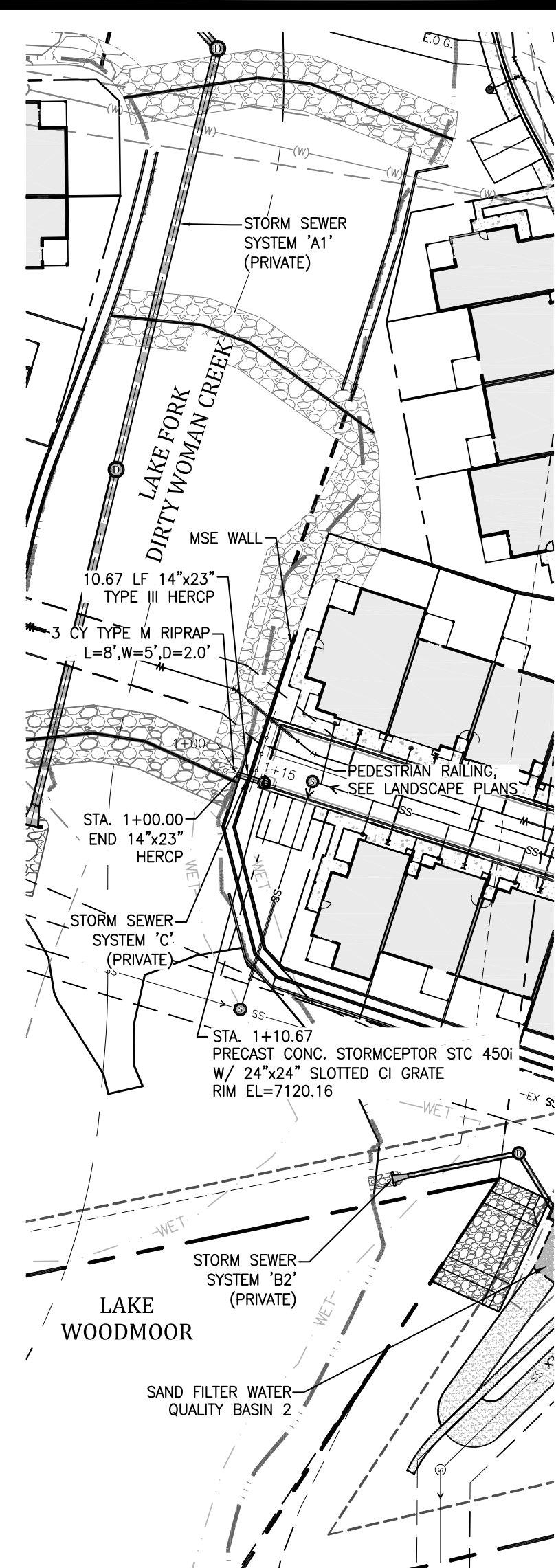
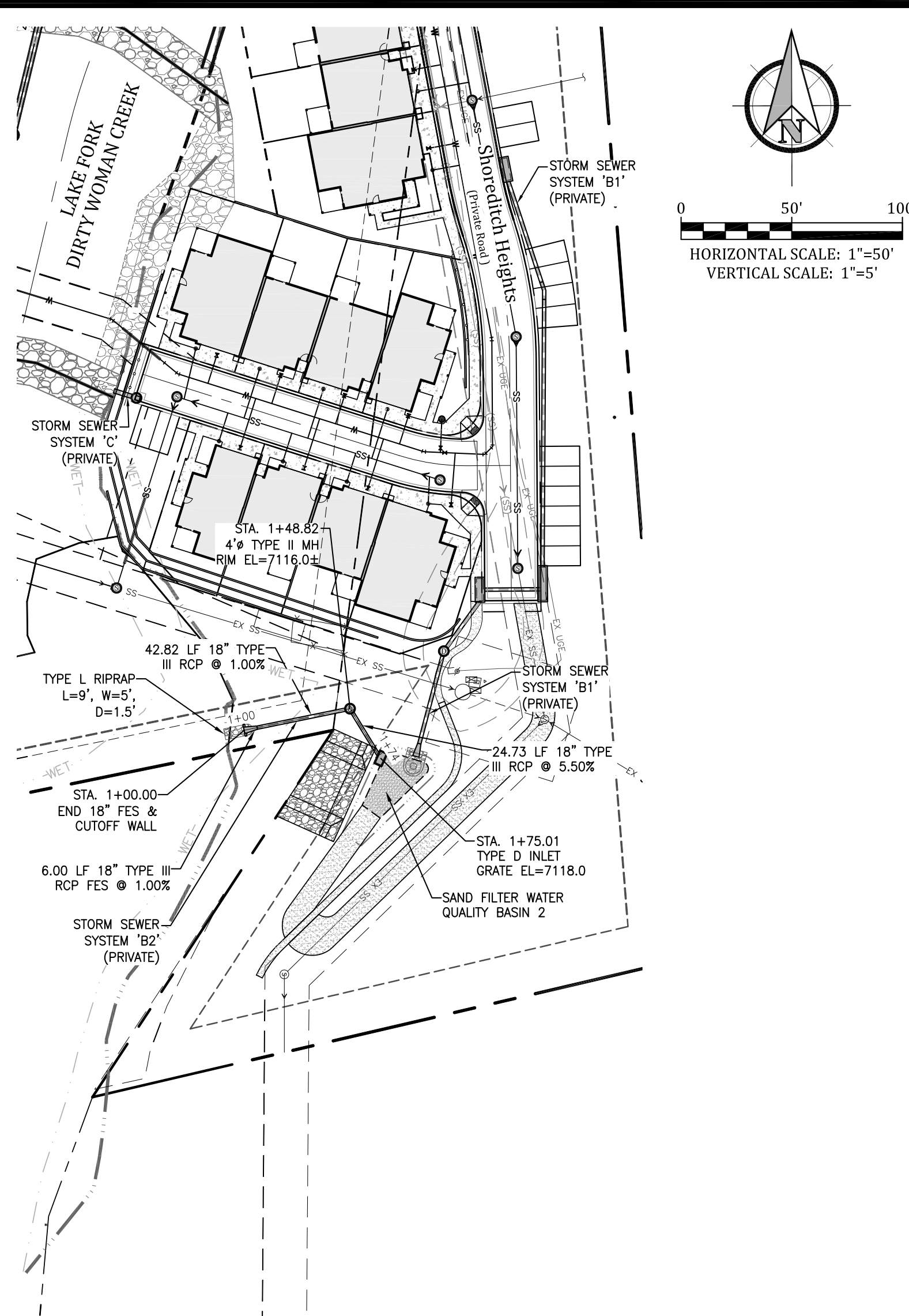
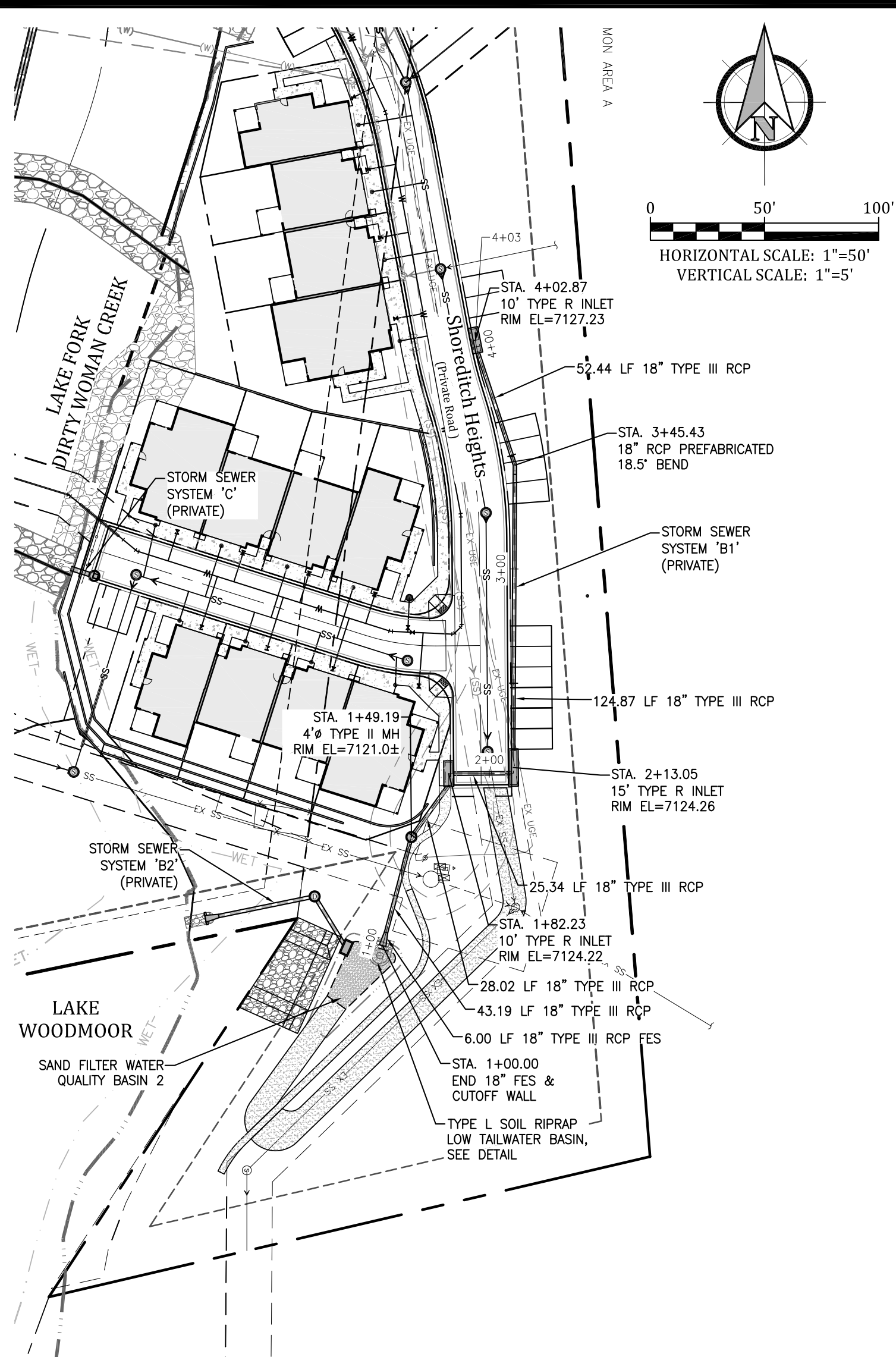
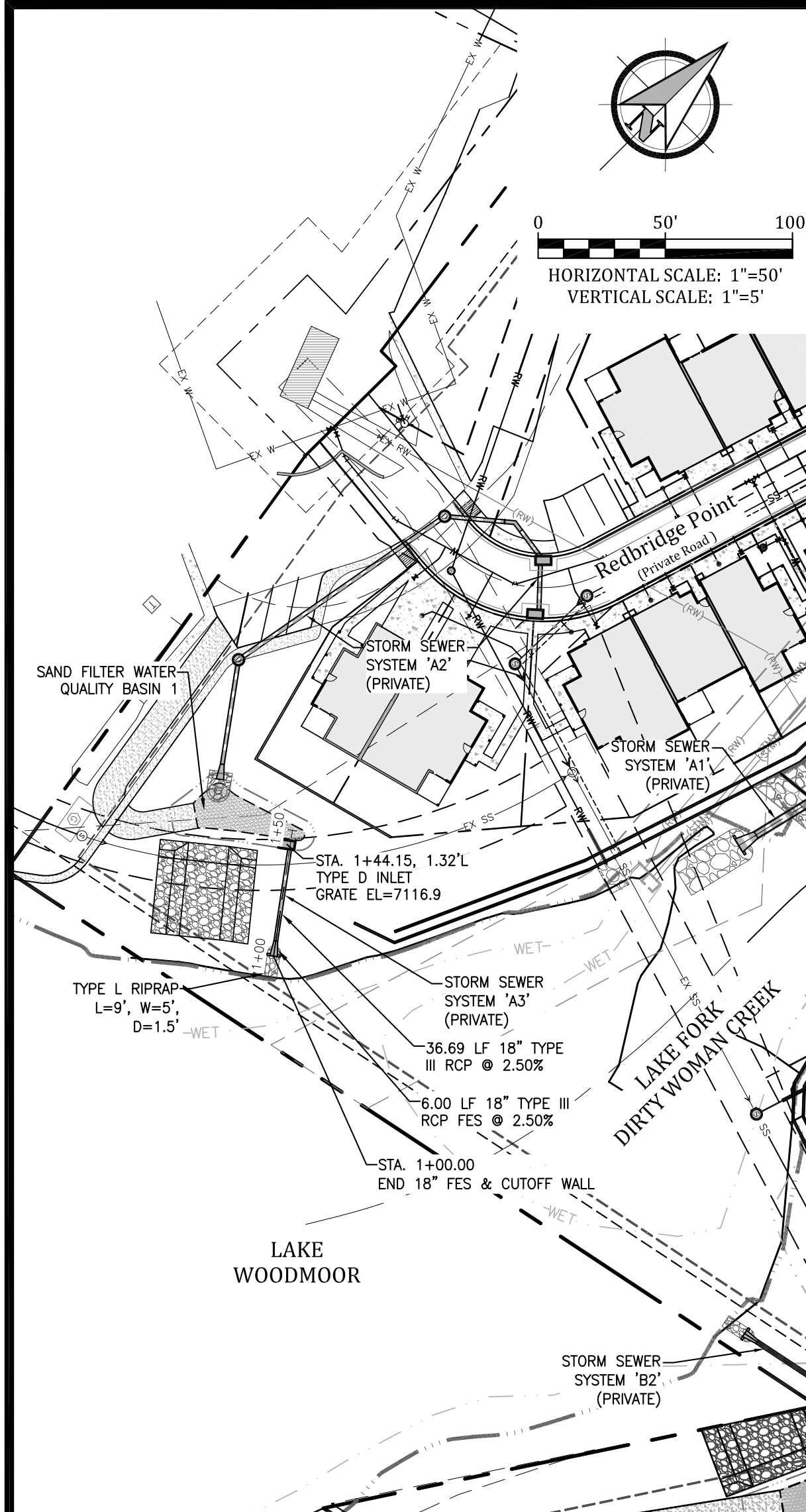
STORM SEWER SYSTEM 'A1' (PRIVATE)

STORM SEWER SYSTEM 'A2' (PRIVATE)

North Bay at Lake Woodmoor  
Storm Sewer Plan and Profiles  
El Paso County, Colorado

Project No.:	15073
Date:	September 4, 2018
Design:	CJC
Drawn:	CJC
Check:	AWMc
Revisions:	





STORM SEWER SYSTEM 'A3' (PRIVATE)

STORM SEWER SYSTEM 'B1' (PRIVATE)

STORM SEWER SYSTEM 'B2' (PRIVATE)

STORM SEWER  
SYSTEM 'C' (PRIVATE)

## North Bay at Lake Woodmoor

Storm Sewer Plan and Profiles  
El Paso County, Colorado

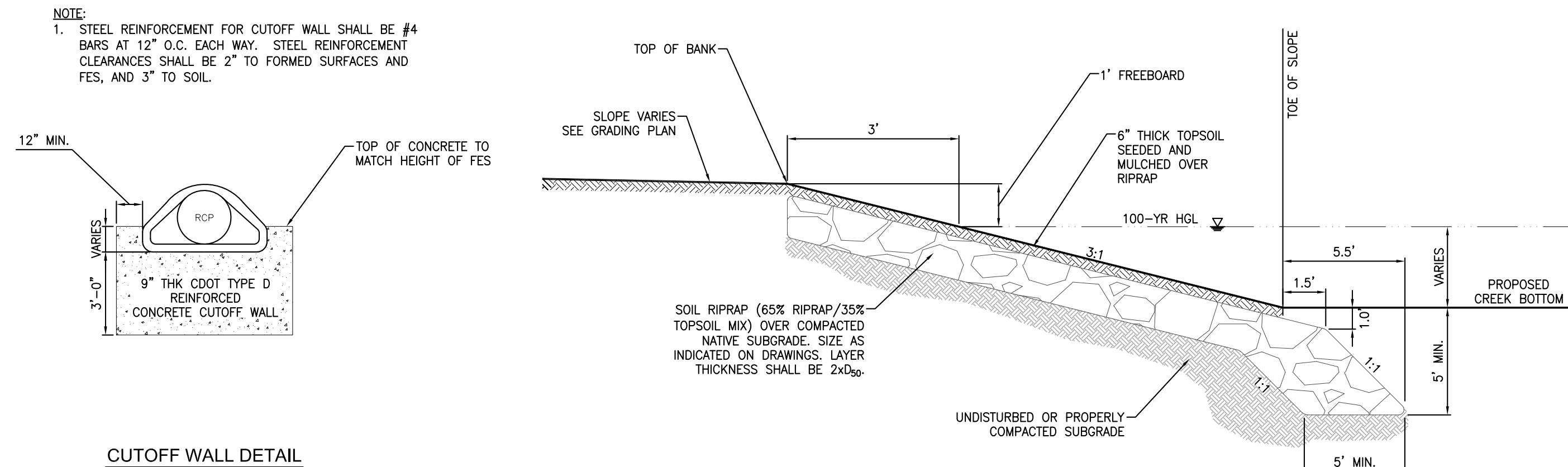
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Date:	September 4, 2018
Design:	CJC
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Revisions:	

SHEET

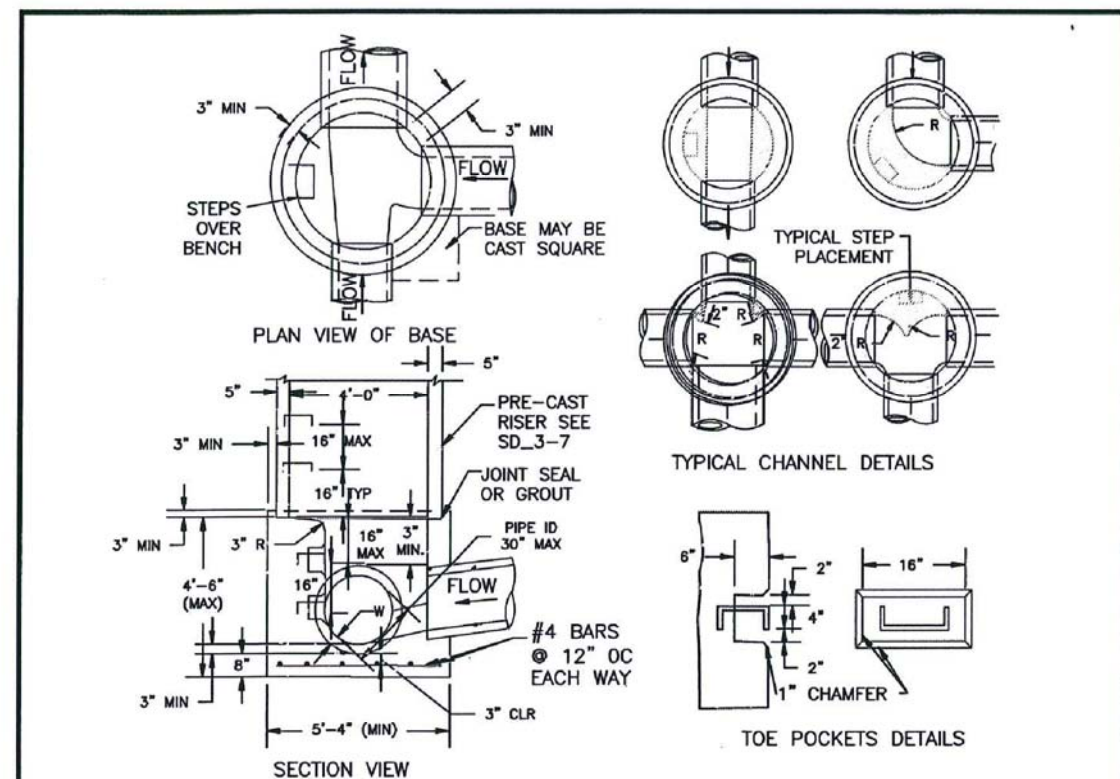
15

OF 21 SHEETS






TYPICAL RIPRAP BANK LINING  
WITH TOE PROTECTION DETAIL  
SCALE: NTS



- NOTES
1. TYPE II MANHOLES SHALL BE USED WHEN APPROPRIATE AND TYPICALLY WHEN THE PIPE SIZES ARE 30" OR LESS INSIDE DIAMETER.
  2. VIEW AND DETAILS ARE TYPICAL DESIGN ENGINEER SHALL DETERMINE MANHOLE BASE CONFORMATION AND DIMENSIONS FOR PARTICULAR PIPE SIZES AND ALIGNMENT.
  3. THE FIRST TWO FEET OF STEPS SHALL BE INSTALLED WHEN MANHOLE DEPTH EXCEEDS 30". STEPS OF BASE SHALL BE INSTALLED IN TPO POCKETS (SEE DETAIL SHEET).
  4. LOWEST STEP SHALL BE A MAXIMUM OF 16" ABOVE THE FLOOR.
  5. PIPES SHALL BE TRIMMED TO FINAL SHAPE AND SET BEFORE MANHOLE IS POURED.
  6. BENCH SHALL BE SLOPED TOWARD CENTER OF MANHOLE BASE (4:1 MAX. 2" PER FOOT MIN.).
  7. FLOOR OF MANHOLE SHALL BE TROWELED TO A SMOOTH, HARD SURFACE AND SHALL SLOPE TOWARD THE OUTLET (8:1-2" PER FT. MIN.). FLOOR SHALL BE SHAPED AND

SCALE: NOT TO SCALE

DATE APPROVED:  André P. Brackin DEPARTMENT OF TRANSPORTATION	Storm Sewer Manhole Detail Type II Standard Drawing	
	REVISION DATE: 11/10/04	FILE NAME: SD_3-2

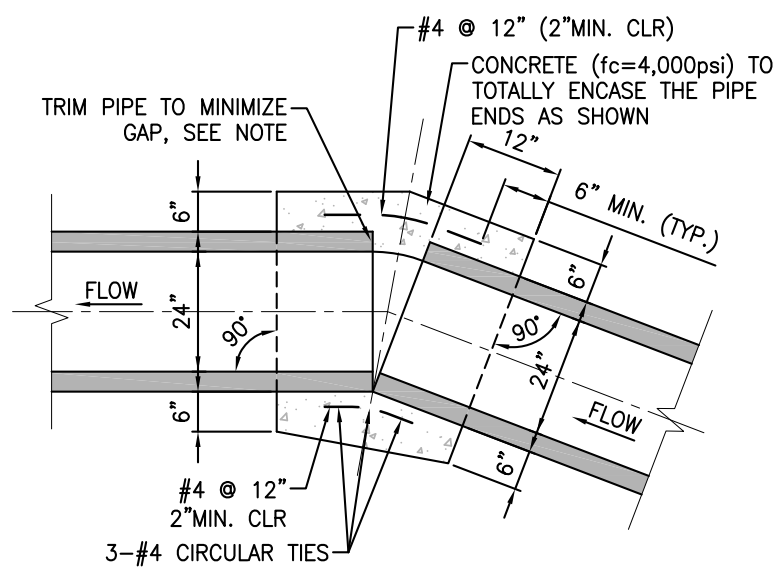
CLASSIFICATION AND GRADATION OF RIPRAP				
RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE ROCK DIMENSION (INCHES)	ROCK DIMENSION (INCHES)	d50* (INCHES)
TYPE VL	70-100 50-70 35-50 2-10	12 9 6 2		6**
TYPE L	70-100 50-70 35-50 2-10	15 12 9 3		9**
TYPE M	70-100 50-70 35-50 2-10	21 18 12 4		12**
TYPE H	100 50-70 35-50 2-10	30 24 18 6		18
TYPE VH	100 50-70 35-50 2-10	42 35 24 9		24

\* d50=MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT.  
 \*\* MIX VL, L AND M RIPRAP WITH 35% TOPSOIL (BY VOLUME) AND BURY WITH 4-6 INCHES OF TOPSOIL, VIBRATION COMPACTED & REVEGETATE.  
 (TABLE M0-7; CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP, UDFCD, DRAINAGE CRITERIA MANUAL, VOL. 1)

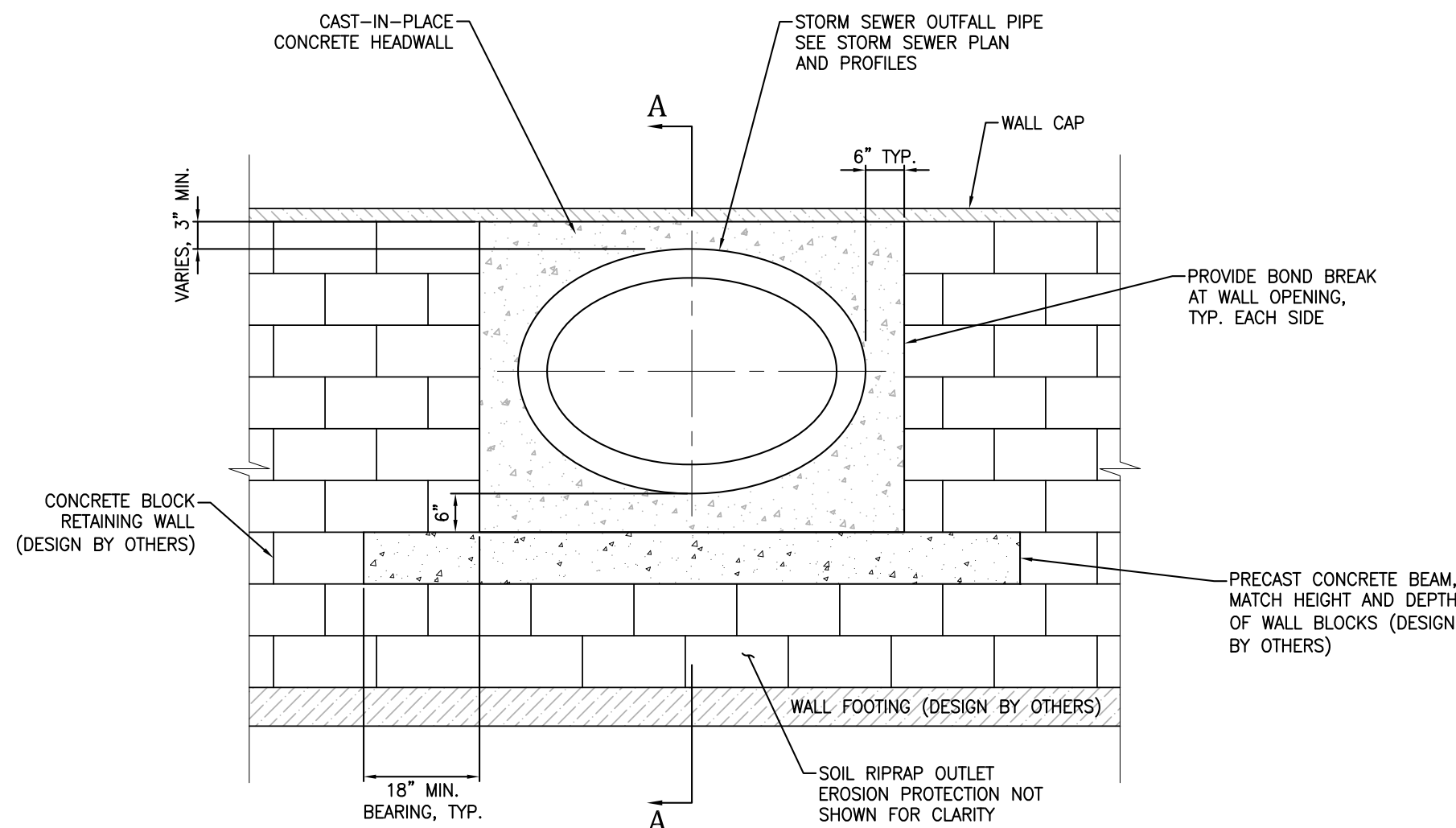
1. THE SOIL MATERIAL SHALL BE NATIVE OR TOPSOIL AND MIXED WITH SIXTY FIVE PERCENT (65%) RIPRAP AND THIRTY FIVE PERCENT (35%) SOIL BY VOLUME. SOIL RIPRAP SHALL CONSIST OF A UNIFORM MIXTURE OF SOIL AND RIPRAP WITHOUT VOIDS.
2. CONTRACTOR SHALL COOPERATE WITH ENGINEER IN OBTAINING AND PROVIDING SAMPLES OF ALL SPECIFIED MATERIALS.
3. CONTRACTOR SHALL SUBMIT CERTIFIED LABORATORY TEST CERTIFICATES FOR ALL ITEMS REQUIRED FOR SOIL RIPRAP.
4. RIPRAP USED SHALL BE THE TYPE DESIGNATED ON THE DRAWINGS AND SHALL CONFORM TO TABLE 1.
5. THE RIPRAP DESIGNATION AND TOTAL THICKNESS OF RIPRAP SHALL BE AS SHOWN ON THE DRAWINGS. THE MAXIMUM STONE SIZE SHALL NOT BE LARGER THAN THE THICKNESS OF THE RIPRAP.
6. NEITHER WIDTH NOR THICKNESS OF A SINGLE STONE OF RIPRAP SHALL BE LESS THAN ONE-THIRD ( $\frac{1}{3}$ ) OF ITS LENGTH.
7. THE SPECIFIC GRAVITY OF THE RIPRAP SHALL BE TWO AND ONE-HALF (2.5) OR GREATER.
8. MINIMUM SPECIFIC GRAVITY OF ACCEPTABLE RIPRAP SHALL BE ONE HUNDRED AND SIXTY FIVE (165) POUNDS PER CUBIC FOOT.
9. RIPRAP SPECIFIC GRAVITY SHALL BE ACCORDING TO THE BULK-SATURATED, SURFACE-DRY BASIS, IN ACCORDANCE WITH AASHTO T85.
10. THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN FORTY PERCENT (40%) AFTER FIVE HUNDRED (500) REVOLUTIONS WHEN TESTED IN ACCORDANCE WITH AASHTO T96.
11. THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN TEN (10%) AFTER FIVE (5) CYCLES WHEN TESTED IN ACCORDANCE WITH AASHTO T104 FOR LEDGE ROCK USING SODIUM SULFATE.
12. THE RIPRAP SHALL HAVE A PERCENTAGE LOSS OF NOT MORE THAN TEN PERCENT (10%) AFTER TWELVE (12) CYCLES OF FREEZING AND THAWING WHEN TESTED IN ACCORDANCE WITH AASHTO T103 FOR LEDGE ROCK. PROCEDURE A. ROCK SHALL BE FREE FROM CALCITE INTRUSIONS.
13. GRAVEL: EACH LOAD OF RIPRAP SHALL BE REASONABLY WELL GRADED FROM THE SMALLEST TO THE LARGEST SIZE SPECIFIED.
  - 13.1. STONES SMALLER THAN THE TWO TO TEN PERCENT (2%–10%) SIZE WILL NOT BE PERMITTED IN AN AMOUNT EXCEEDING TEN PERCENT (10%) BY WEIGHT OF EACH LOAD.
  - 13.2. CONTROL OF GRADATION SHALL BE BY VISUAL INSPECTION. HOWEVER IN THE EVENT THE ENGINEER DETERMINES THE RIPRAP TO BE UNACCEPTABLE, THE ENGINEER SHALL PICK TWO (2) RANDOM TRUCKLOADS TO BE DUMPED AND CHECKED FOR GRADATION. MECHANICAL EQUIPMENT AND LABOR NEEDED TO ASSIST IN CHECKING GRADATION SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST.

- NOTES:
1. WALL DESIGN AND INSTALLATION REQUIREMENTS, INCLUDING BUT NOT LIMITED TO EXCAVATION, WALL FOOTING, WALL DRAINAGE, GEOTEXTILE MATERIAL/PLACEMENT, BACKFILL AND COMPACTION TO BE COMPLETED BY OTHERS. THE PIPE RETAINING METAL, INCLUDING HEREIN SHALL BE CONSTRUCTED AND INCORPORATED INTO THE WALL DESIGN.
  2. PRIOR TO CONSTRUCTION, CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR THE BEAMS AND HEADWALLS.
  3. GRADE 60 REINFORCING STEEL REQUIRED. SEE TABLE FOR THE MINIMUM LAP SPlice LENGTH FOR REINFORCING BARS.
  4. ALL REINFORCING STEEL SHALL HAVE 2-INCH MINIMUM CLEARANCE FROM EDGE OF CONCRETE AND 3-INCH MIN CLEARANCE TO EDGE OF CONCRETE PLACED ON TOP OF SOIL, UNLESS OTHERWISE NOTED.
- | BAR SIZE           | #4    | #5    | #6    |
|--------------------|-------|-------|-------|
| MIN. SPlice LENGTH | 1'-3" | 1'-7" | 2'-0" |
4. STEEL REINFORCEMENT FOR HEADWALLS SHALL BE TWO MATS OF 4# BARS AT 8" O.C. EACH WAY, WITH CLEARANCES AS SPECIFIED IN NOTE 3.
  5. CONCRETE FOR THE BEAMS AND HEADWALLS SHALL BE COT CLASS D CONCRETE.
  6. FINAL SIZE, REINFORCEMENT AND CONFIGURATION OF PRECAST BEAMS SHALL BE APPROVED BY THE WALL DESIGNER. PRECAST BEAMS SHALL BE DELIVERED TO SITE WITH A MINIMUM FULL SEVEN DAY CONCRETE STRENGTH.
  7. INSTALLING AGAINST BEAMS OR HEADWALLS SHALL NOT COMMENCE UNTIL CONCRETE HAS OBTAINED ITS FULL SEVEN DAY STRENGTH.
  8. OUTFALL PIPES SHALL BE INSTALLED PRIOR TO CONSTRUCTION OF THE RETAINING WALLS.

- NOTES:**
1. PIPE ENDS (ENTIRE END) SHALL BE CUT AT ANGLE TO MINIMIZE GAP BETWEEN PIPES. 6-INCH MAXIMUM GAP BETWEEN PIPE ENDS.
  2. AN INTERIOR FORM SHALL BE USED TO PROVIDE A SMOOTH INTERIOR JOINT. THE FORM MUST BE REMOVED AFTER CONSTRUCTION.

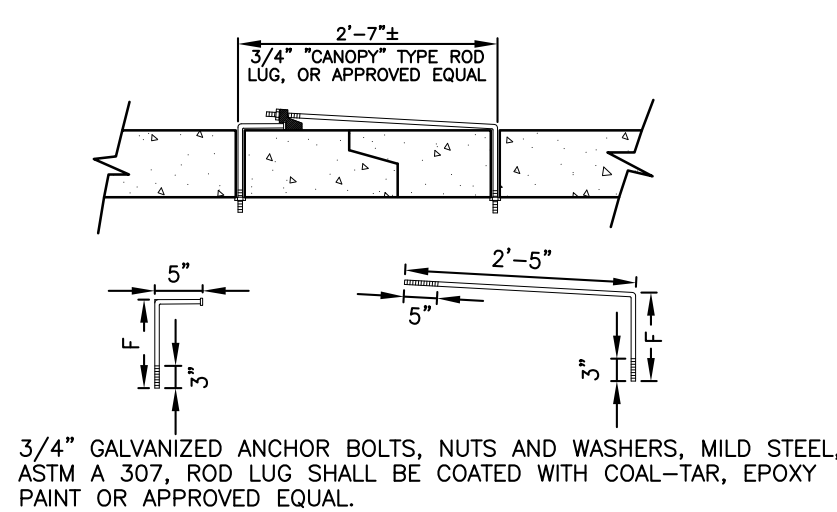


**STORM SEWER CONCRETE COLLAR**  
SCALE: NTS

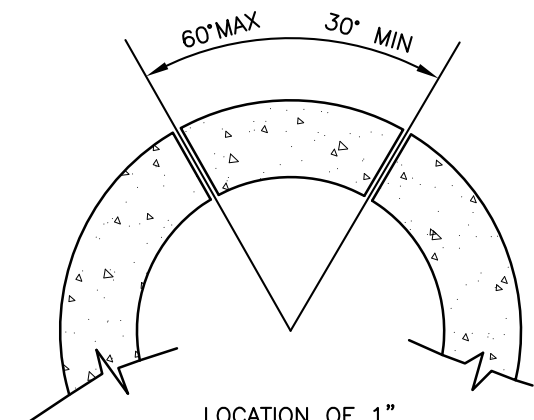


ELEVATION VIEW

RETAINING WALL PIPE PENETRATION  
SCALE: NTS



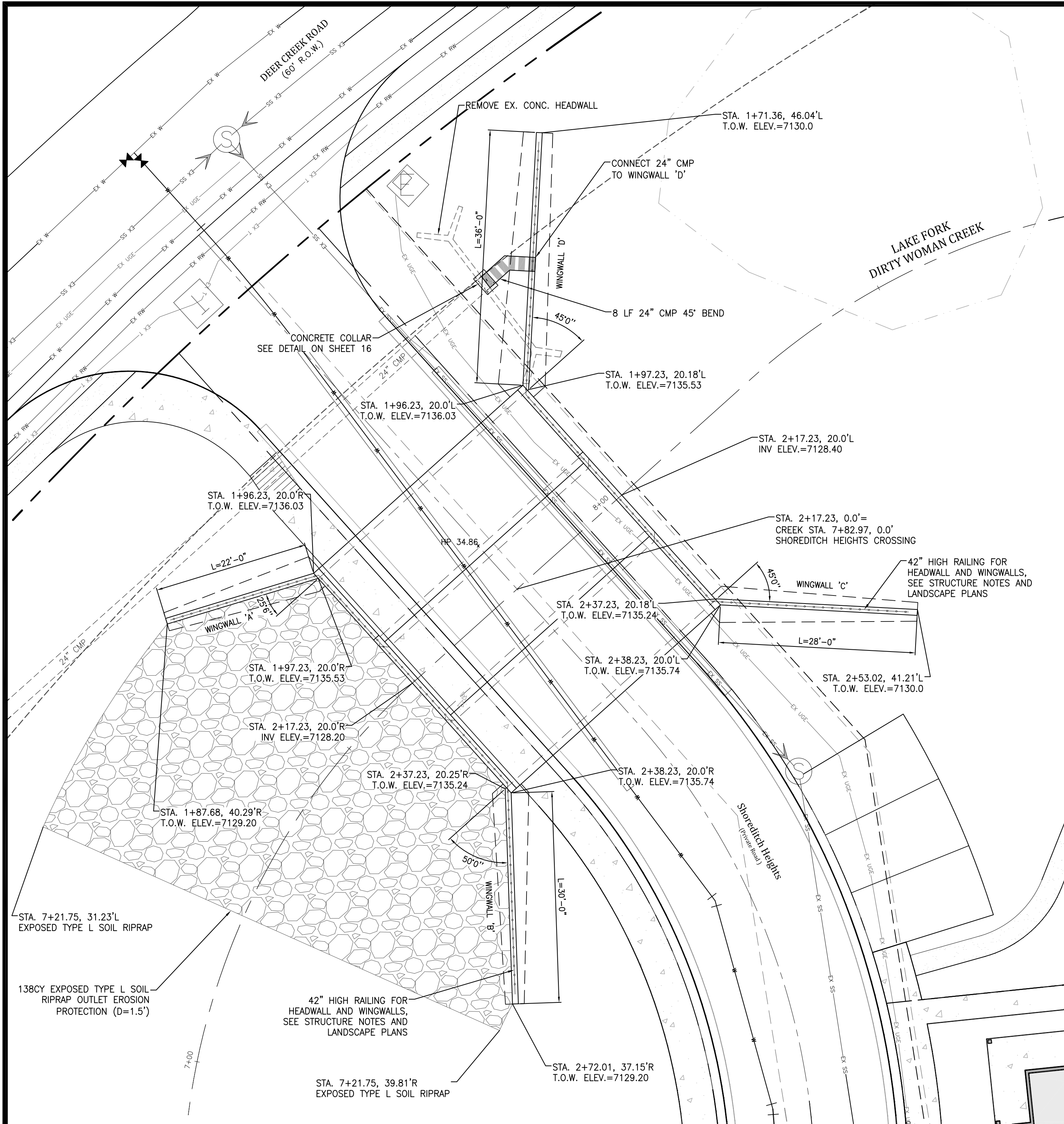
CONCRETE PIPE JOINT FASTENER  
SCALE: NTS



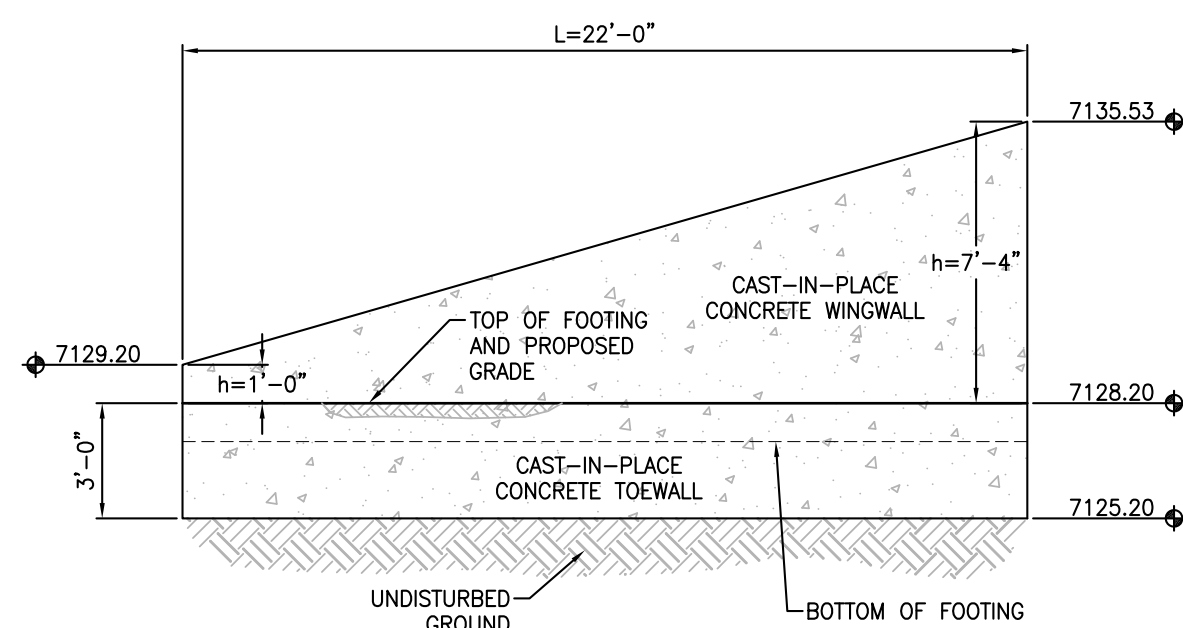
- NOTE:  
CONCRETE JOINT FASTENERS REQUIRED  
ON THE FIRST TWO PIPE JOINTS FROM  
A FLARED END SECTION.

PIPE DIAMETER	F
18"–30"	5"
36"–42"	6"
48"–60"	7"
72"–84"	9"

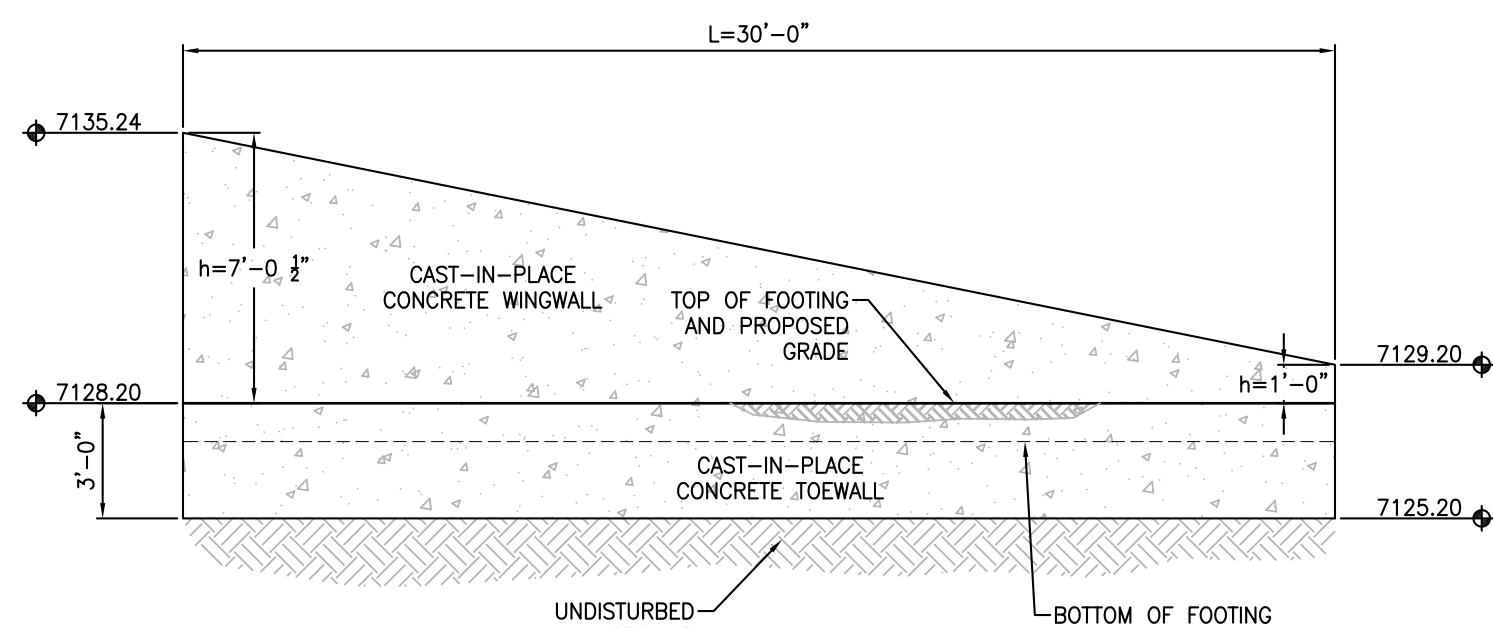




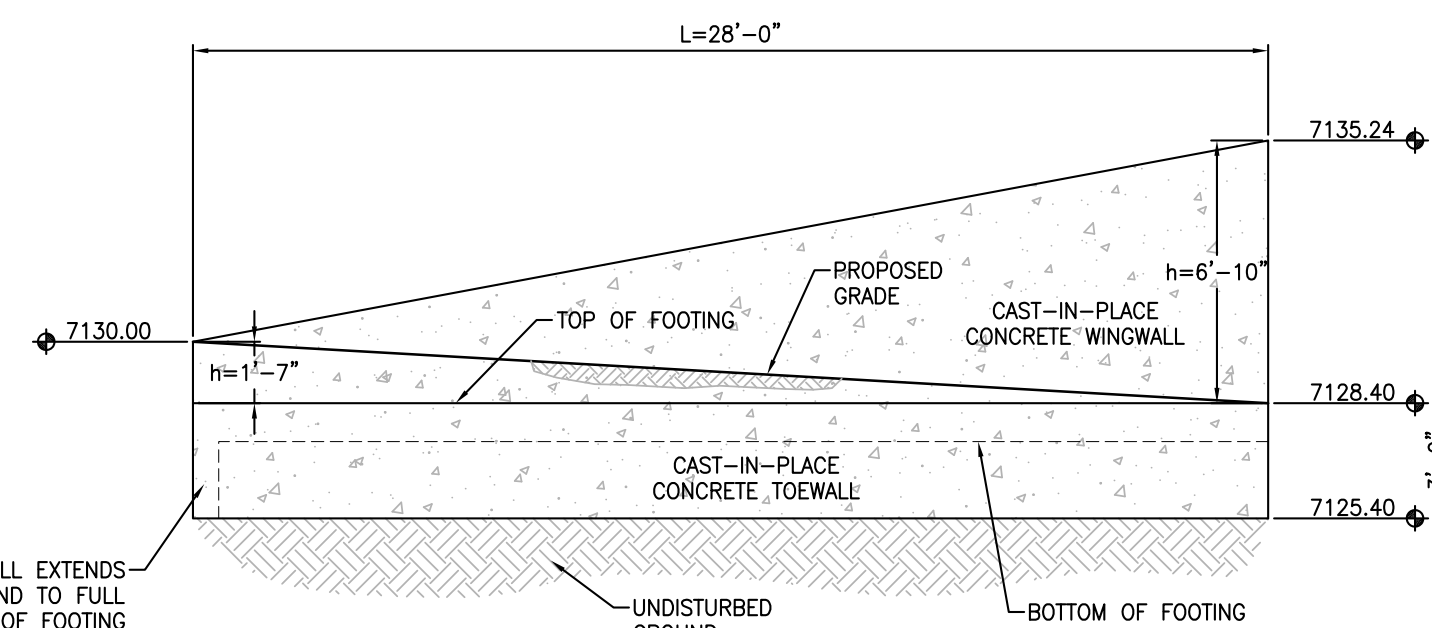
SHOREDITCH HEIGHTS CROSSING PLAN  
SCALE: 1" = 10'



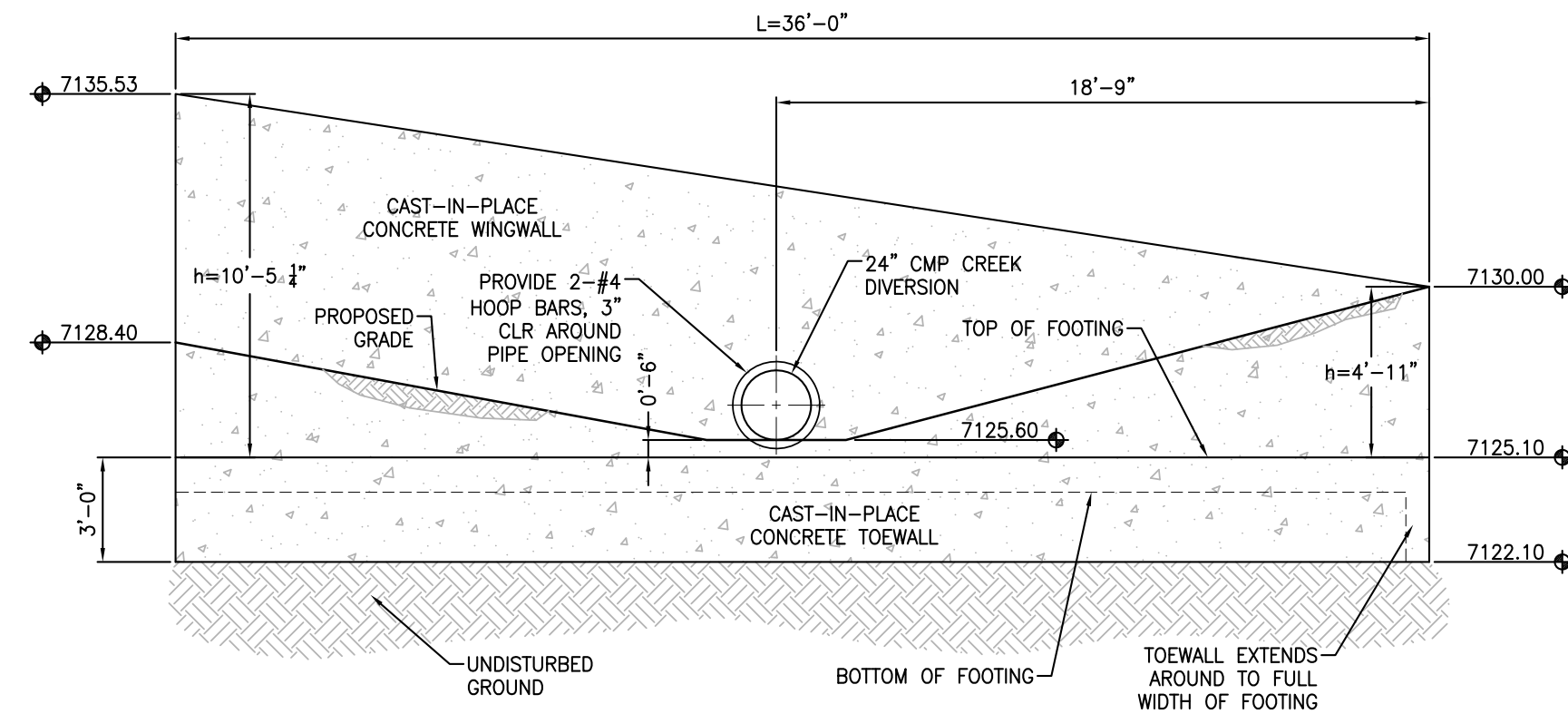
WINGWALL 'A' ELEVATION VIEW  
SCALE: 1" = 5'



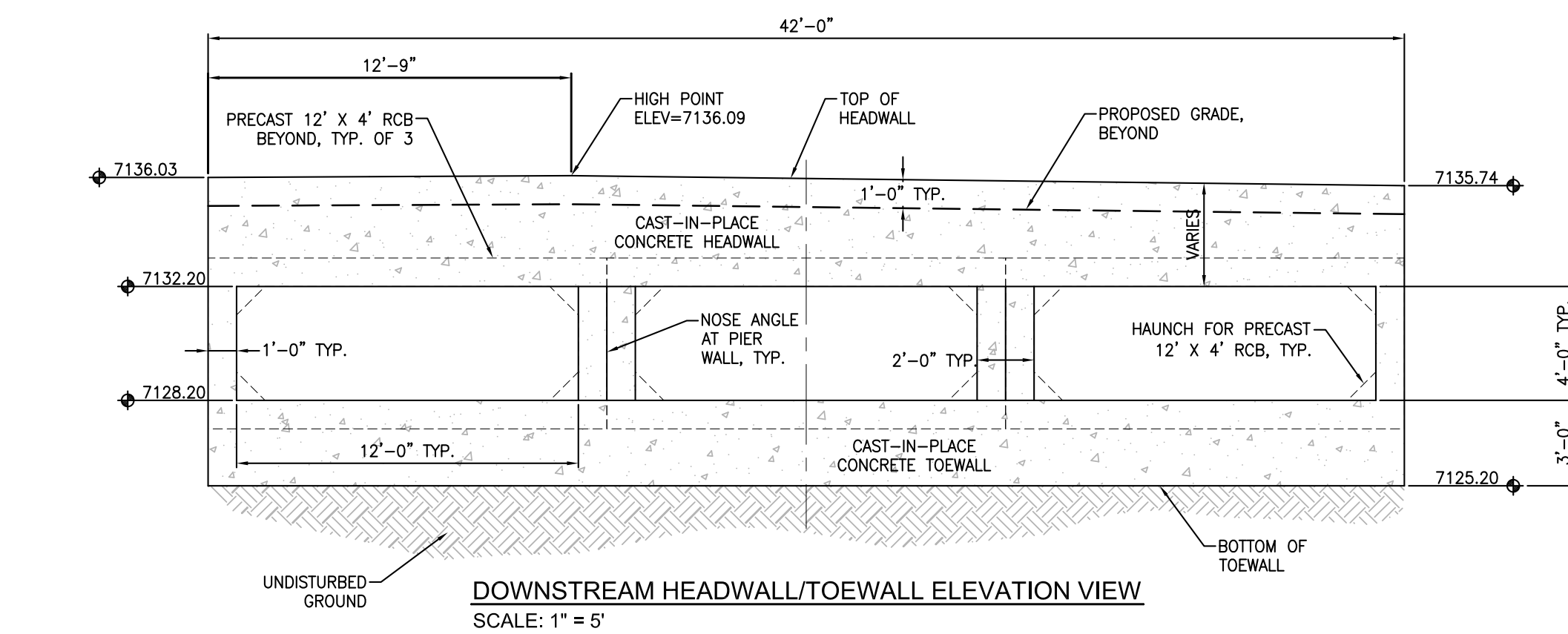
WINGWALL 'B' ELEVATION VIEW  
SCALE: 1" = 5'



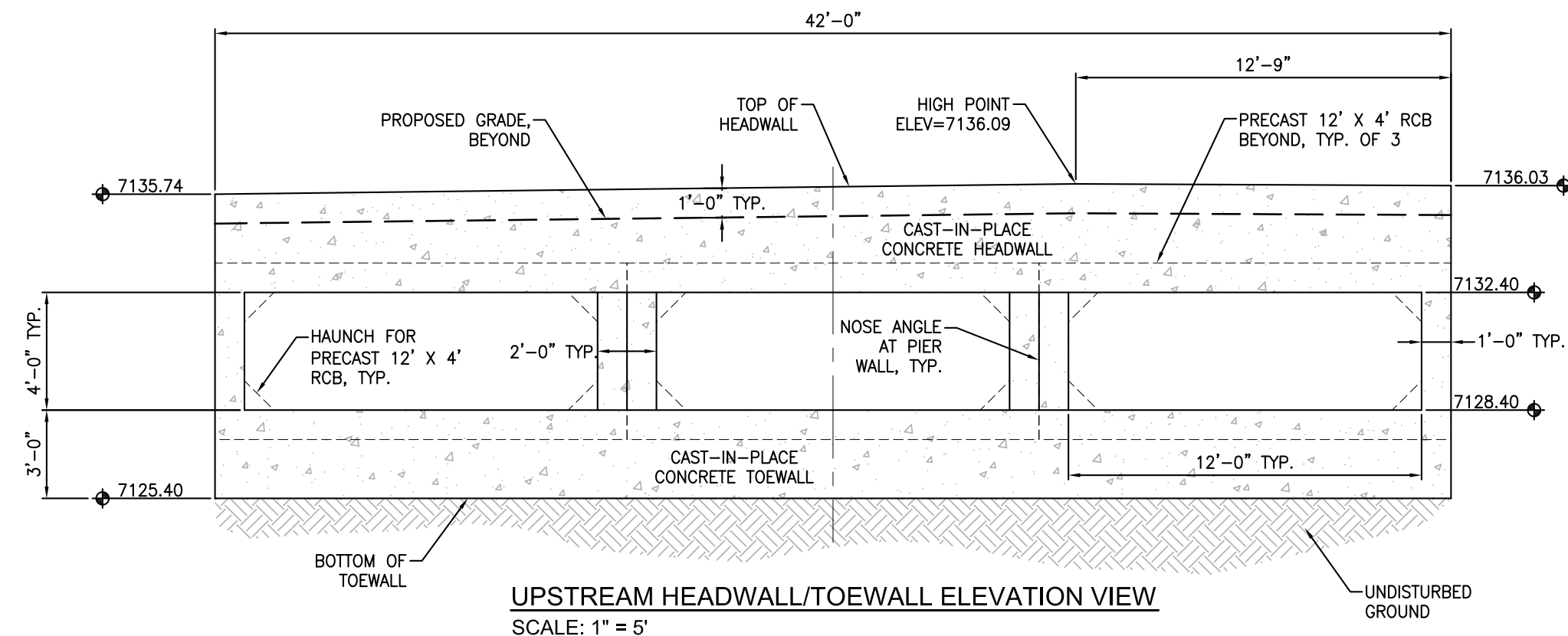
WINGWALL 'C' ELEVATION VIEW  
SCALE: 1" = 5'



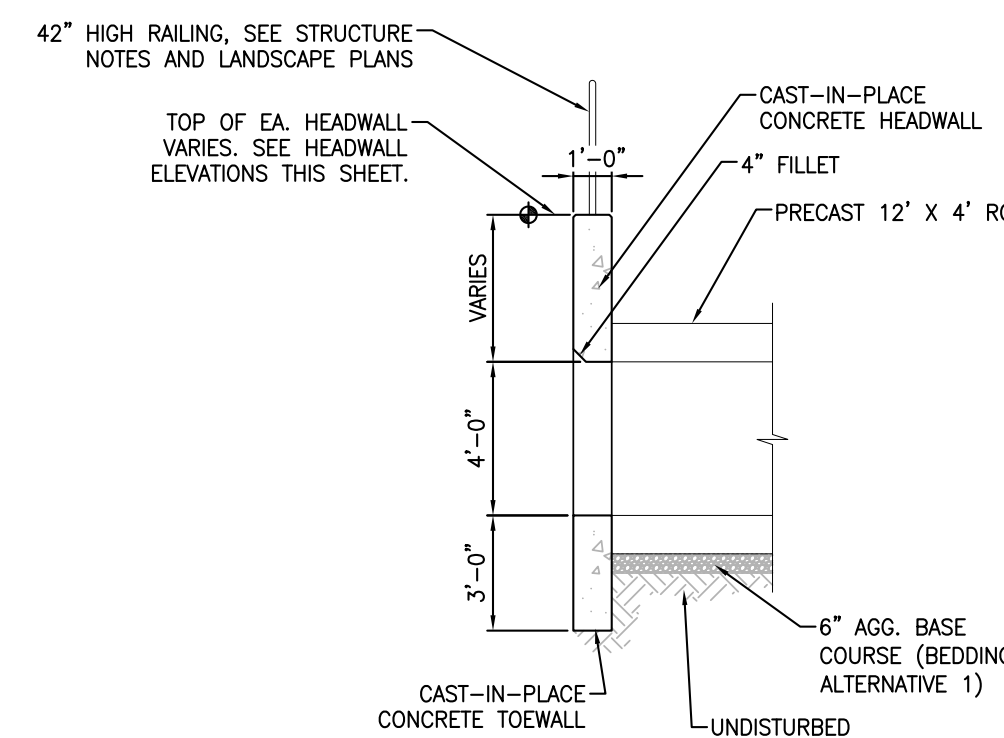
WINGWALL 'D' ELEVATION VIEW  
SCALE: 1" = 5'



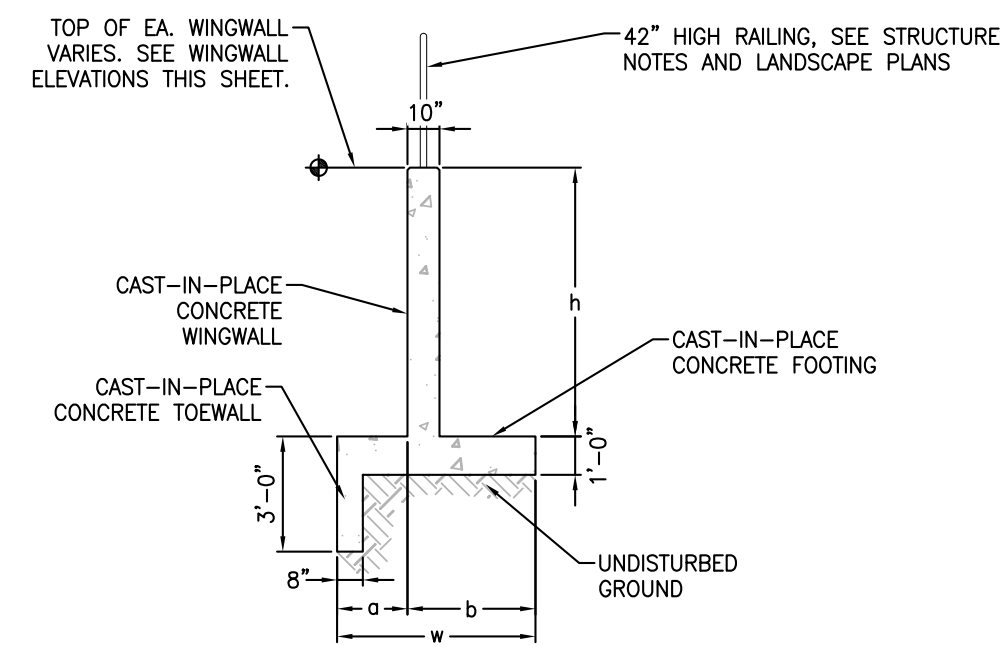
DOWNSTREAM HEADWALL/TOEWALL ELEVATION VIEW  
SCALE: 1" = 5'



UPSTREAM HEADWALL/TOEWALL ELEVATION VIEW  
SCALE: 1" = 5'



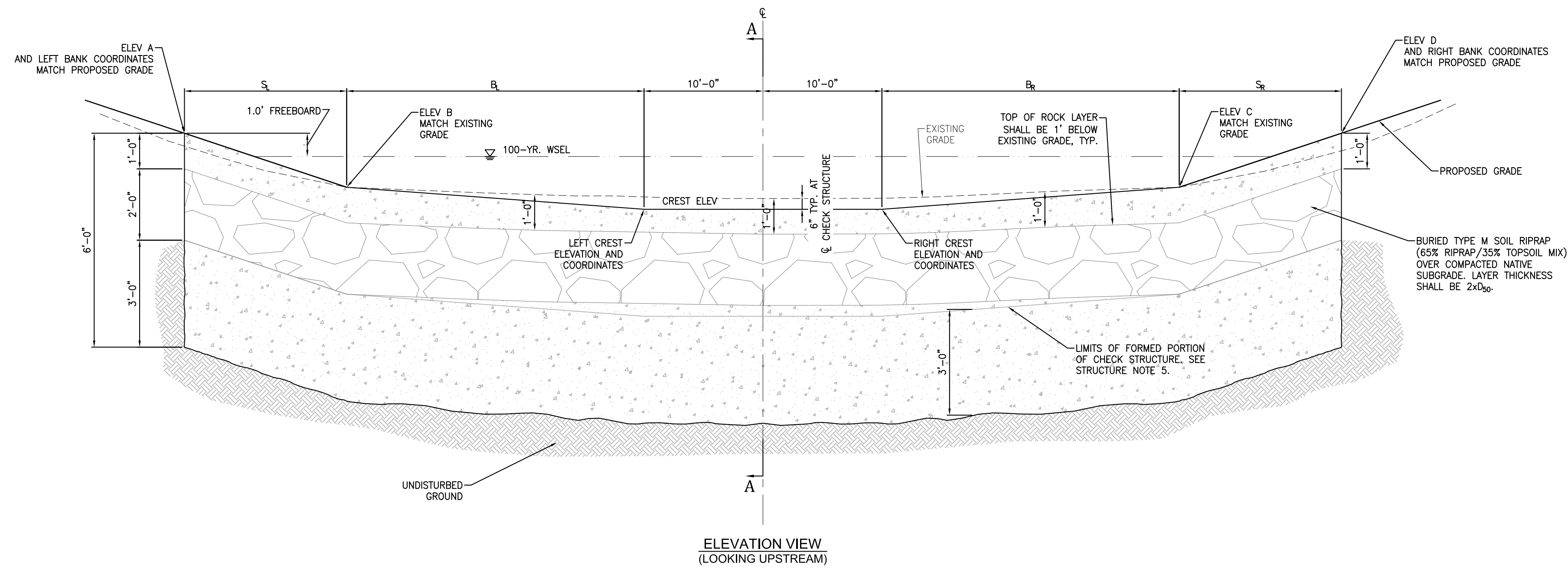
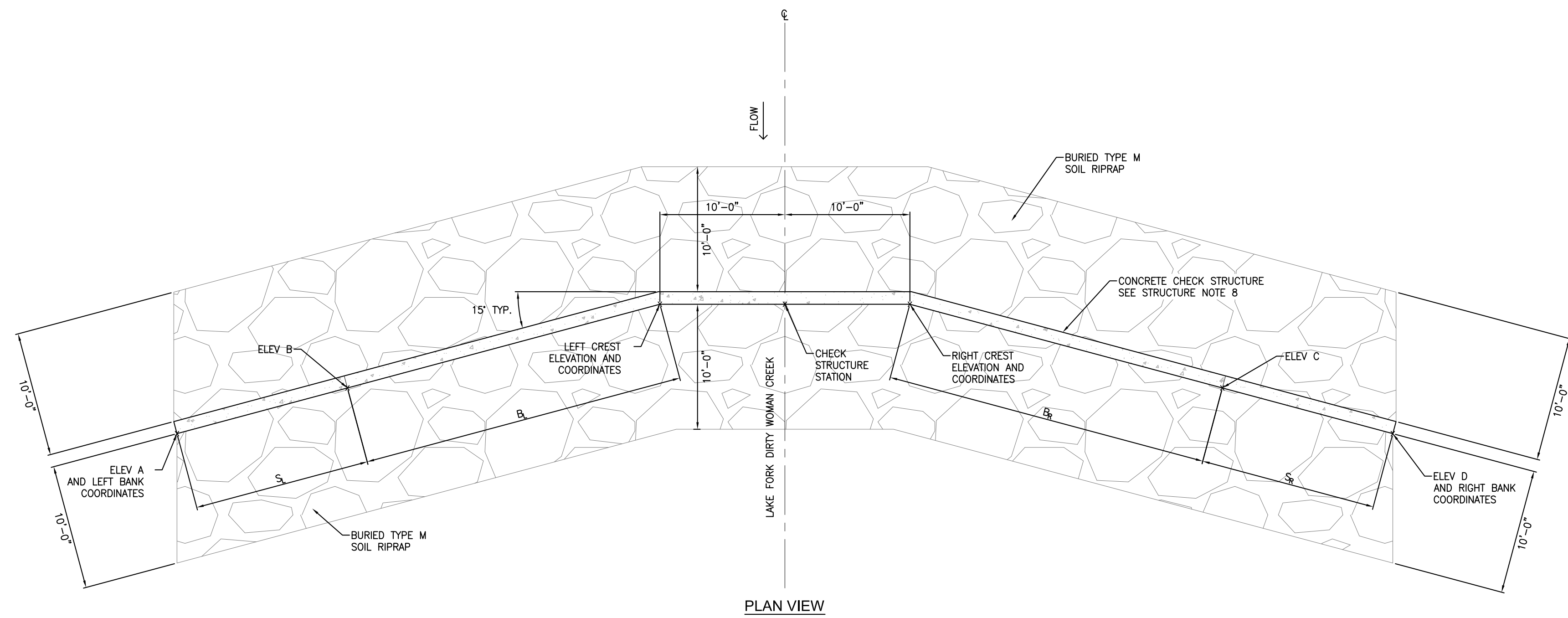
HEADWALL/TOEWALL TYPICAL SECTION  
SCALE: 1" = 5'



WINGWALL TYPICAL SECTION  
SCALE: 1" = 5'

- STRUCTURE NOTES:
1. PRECAST CONCRETE BOX CULVERT MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH CDOT STANDARD PLAN NO. M-603-3, WITH BEDDING ALTERNATIVE 1.
  2. CAST-IN-PLACE CONCRETE HEADWALLS WITH TOEWALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CDOT STANDARD PLANS NO. M-601-3, M-601-20 AND M-603-3.
  3. CAST-IN-PLACE CONCRETE WINGWALLS WITH TOEWALLS, AND THEIR CONNECTION TO THE PRECAST BOX CULVERT, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CDOT STANDARD PLAN NO. M-601-20. FOR WALL HEIGHTS LESS THAN 2'-0", USE DESIGN FOR h=2'.
  4. CAST-IN-PLACE NOSE ANGLES FOR PIER WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CDOT STANDARD PLAN NO. M-6013 AND M-603-3.
  5. REINFORCING STEEL AND MINIMUM SPLICE LENGTHS SHALL BE AS SPECIFIED ON CDOT STANDARD PLAN NO. M-601-20.
  6. ALL REINFORCING STEEL SHALL HAVE 2-INCH MINIMUM CLEARANCE FROM EDGE OF CONCRETE AND 3-INCH MIN CLEARANCE TO EDGE OF CONCRETE PLACED AGAINST SOIL, UNLESS OTHERWISE NOTED.
  7. CONCRETE FOR SHOREDITCH HEIGHTS CROSSING STRUCTURE SHALL BE CDOT CLASS D CONCRETE.
  8. BACKFILLING AGAINST WALLS SHALL NOT COMMENCE UNTIL CONCRETE HAS OBTAINED ITS FULL SEVEN DAY STRENGTH.
  9. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PER ASTM M588.
  10. PEDESTRIAN RAILING OR OTHER APPROVED FALL PROTECTION IS REQUIRED ALONG THE TOP OF HEADWALLS AND WINGWALLS. SEE LANDSCAPE PLANS FOR RAILING LOCATIONS AND DETAILS.



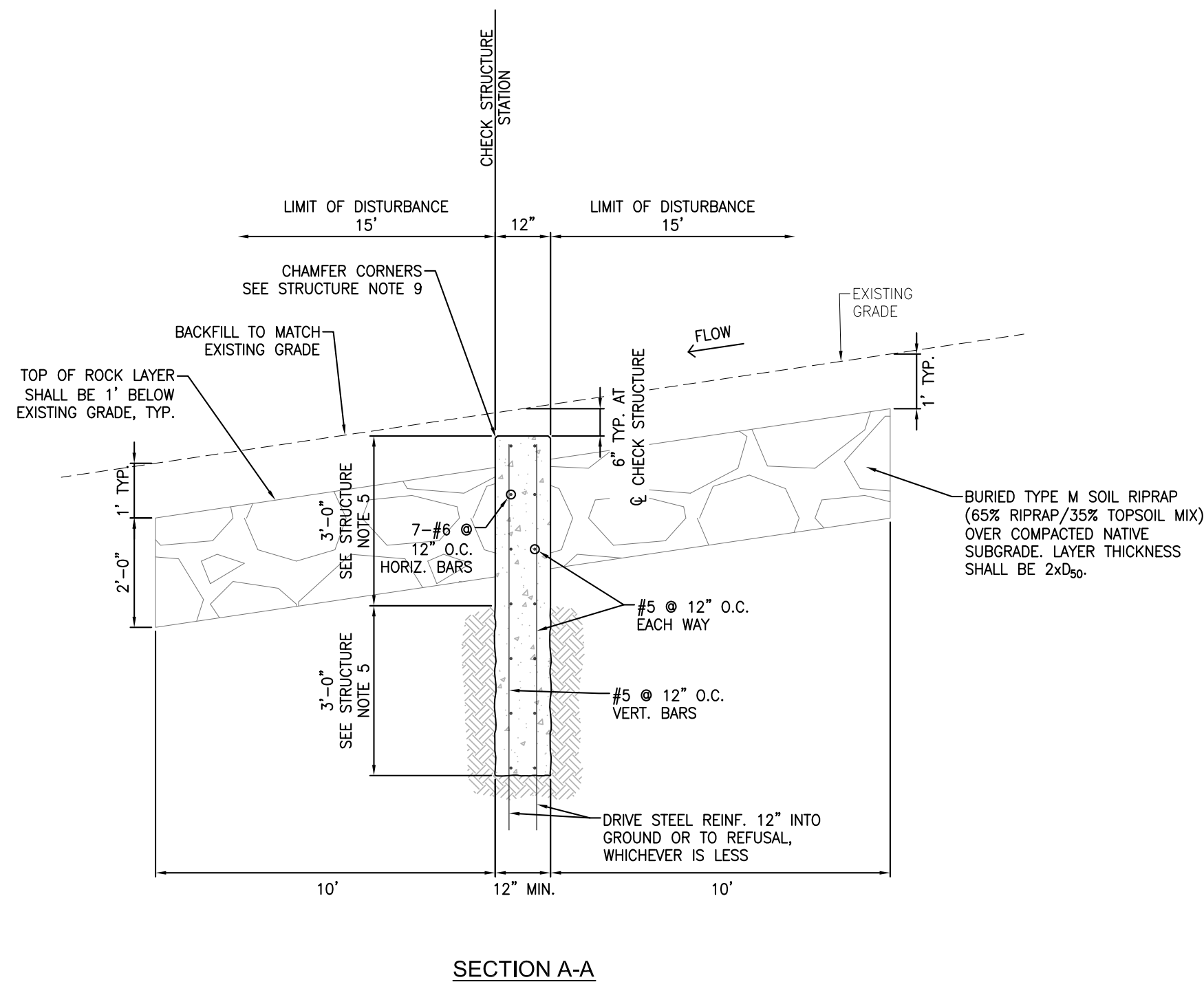


CHECK STRUCTURE DETAILS (PRIVATE)  
NTS

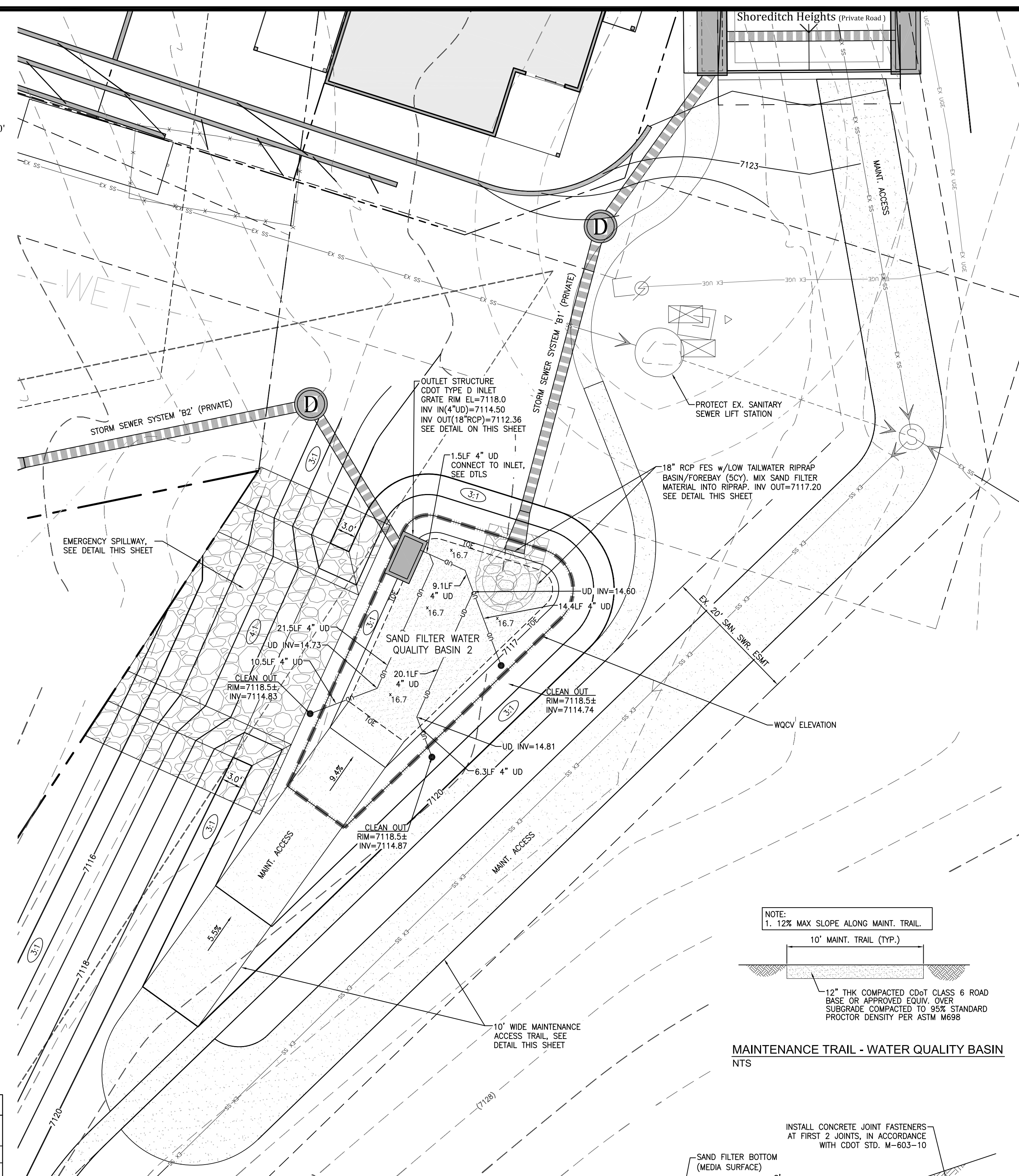
CHECK STRUCTURE LAYOUT TABLE (ALL DIMENSIONS IN FEET U.N.O.)													
CHECK STRUCTURE STATION	LEFT CREST COORDINATES	RIGHT CREST COORDINATES	LEFT BANK COORDINATES	RIGHT BANK COORDINATES	B <sub>L</sub>	B <sub>R</sub>	S <sub>L</sub>	S <sub>R</sub>	CREST ELEV (LEFT/RIGHT)	ELEV A	ELEV B	ELEV C	ELEV D
STA. 3+67.33	N 22476.23	N 22473.09	N 22472.88	N 22457.64	26.6	30.6	5.7	7.3	7112.5	7114.0	7113.8	7112.7	7113.8
	E 49997.75	E 50017.50	E 49965.65	E 50052.14									
STA. 5+26.04	N 22630.92	N 22623.82	N 22634.40	N 22590.16	34.4	37.6	---	19.9	7120.6	---	7120.9	7120.9	7123.6
	E 50038.95	E 50057.65	E 50004.76	E 50104.31									
STA. 6+24.85	N 22724.61	N 22722.37	N 22716.96	N 22701.08	44.3	42.8	7.1	15.4	7125.9	7128.5	7126.2	7126.2	7128.5
	E 50060.19	E 50080.06	E 50009.39	E 50134.29									

- STRUCTURE NOTES:
- TOP OF CHECK STRUCTURES SHALL MATCH PROPOSED GRADE ON THE SIDE SLOPES.
  - BACKFILL TO MATCH EXISTING GRADE FOR CHANNEL BOTTOM AND BENCHES.
  - BACKFILLING AGAINST WALLS SHALL NOT COMMENCE UNTIL CONCRETE HAS OBTAINED ITS FULL SEVEN DAY STRENGTH.
  - BACKFILL MATERIAL SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY PER ASTM M698.
  - THE TOP 3 FEET MINIMUM OF EACH CHECK STRUCTURE SHALL BE FORMED CONCRETE, AND THE BOTTOM 3 FEET CAN BE PLACED AGAINST UNDISTURBED SOIL.
  - LIMIT OF DISTURBANCE REPRESENTS THE MAXIMUM ALLOWABLE LIMIT OF DISTURBANCE TO THE NATURAL CHANNEL BOTH UPSTREAM AND DOWNSTREAM OF EACH CHECK STRUCTURE. DISTURBED AREAS SHALL BE SEEDED WITH A NATIVE GRASS MIX.
  - GRADE 60 REINFORCING STEEL REQUIRED. SEE TABLE FOR THE MINIMUM LAP SPLICE LENGTH FOR REINFORCING BARS. ALL REINFORCING STEEL SHALL HAVE 2-INCH MINIMUM CLEARANCE FROM EDGE OF CONCRETE AND 3-INCH MIN CLEARANCE TO EDGE OF CONCRETE PLACED AGAINST SOIL, UNLESS OTHERWISE NOTED.
  - MIN. SPLICE LENGTH: 

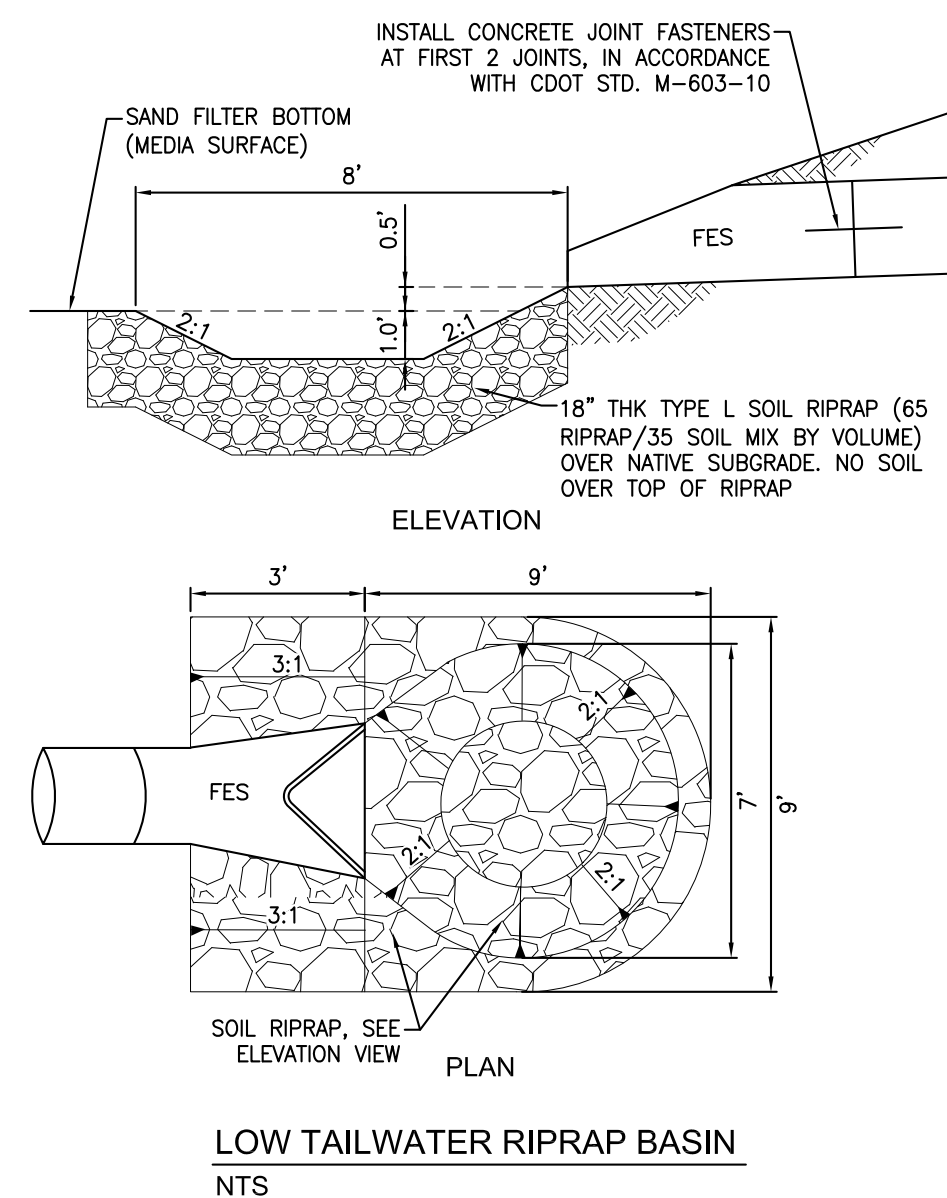
BAR SIZE	#4	#5	#6
1'-3"	1'-3"	1'-3"	1'-3"
1'-3" - 1'-7"	1'-7"	1'-7"	1'-7"
1'-7" - 2'-0"	2'-0"	2'-0"	2'-0"
  - CONCRETE FOR CHECK STRUCTURES SHALL BE COT CLASS B CONCRETE.
  - ALL EXPOSED CONCRETE CORNERS SHALL HAVE A 3/4-INCH CHAMFER UNLESS OTHERWISE NOTED.







SAND FILTER WATER QUALITY BASIN 2  
SCALE: 1" = 10'



WATER QUALITY BASIN 2			
	WATER SURFACE ELEV. (FT)	REQUIRED STORAGE VOLUME	DRAIN TIME
WQCV	7118.0	887 CF	12-HR

SAND FILTER FINISH GRADE ELEVATION: 7116.7
SPILLWAY CREST ELEVATION: 7118.7
TOP OF EMBANKMENT MINIMUM ELEVATION: 7120.0
NOTE: AS-BUILT SURVEY AND VOLUME CERTIFICATION REQUIRED BY A LICENSED PROFESSIONAL LAND SURVEYOR. SEE NOTES. AT

GRADATION SPECIFICATIONS FOR CDOT CLASS B OR C FILTER MATERIAL		
SIEVE SIZE	MASS % PASSING SQUARE MESH SIEVES	
	CLASS B	CLASS C
37.5mm (1.5")	100	100
19.0mm (3/4")		
4.75mm (No. 4)	20-60	60-100
1.18mm (No. 16)	10-30	
300µm (No. 50)	0-10	10-30
150µm (No. 100)		0-10
75µm (No. 200)	0-3	0-3

5'-0" MIN. BOTTOM (FLAT)  
SEE PLAN FOR DIMENSION

3:1 MAX

EL=7115.6 (WQ BASIN 1)  
EL=7116.7 (WQ BASIN 2)

0% SLOPE

1'-6" MIN.

GRASS-LINED SIDE SLOPE

3:1 MAX

ANCHOR TRENCH FOR  
GEOTEXTILE FABRIC  
TERMINATION

CDOT CLASS B OR C FILTER MATERIAL  
UNDERLAY BY WOVEN GEOTEXTILE  
FABRIC MEETING CDOT CLASS B  
GEOTEXTILE SEPARATOR FABRIC. 12"  
MIN. OVERLAP.

4" SLOTTED PVC PIPE (NO SOCK)  
Ø 1.0 FT (0.6% MIN. ABOVE GEOTEXTILE FABRIC)

PIPE LAID OVER AGGREGATE, 1"  
MIN. ABOVE GEOTEXTILE FABRIC

TOP WIDTH

SAND FILTER SECTION  
NTS

ORIFICE PLATE - OUTLET STRUCTURE

LOW TAILWATER RIPRAP BASIN

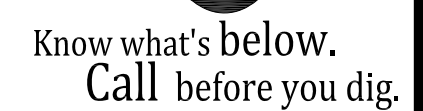


1. STOP SIGN PLACEMENT LOCATIONS SHALL BE PER SECTION 2B-9 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION AND CDOT S-614-1.

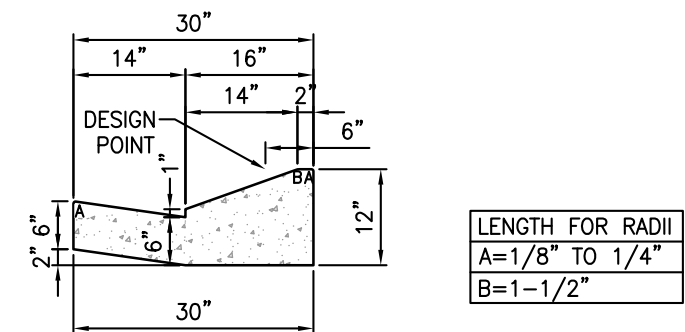


SCALE: 1/4" = 1'-0"

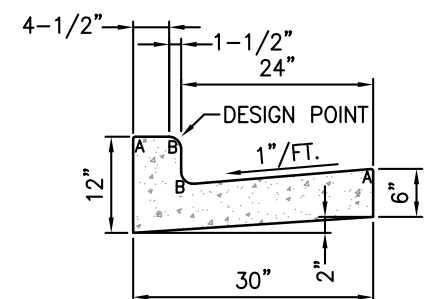
1. All signs and pavement markings shall be in compliance with the current Manual on Uniform Traffic Control Devices (MUTCD).
2. Removal of existing pavement markings shall be accomplished by a method that does not materially damage the pavement. The pavement markings shall be removed to the extent that they will not be visible under day or night conditions. At no time will it be acceptable to paint over existing pavement markings.
3. Any deviation from the striping and signing plan shall be approved by El Paso County Planning and Community Development.
4. All signs shown on the signing and striping plan shall be new signs. Existing signs may remain or be reused if they meet current El Paso County and MUTCD standards.
5. Street name and regulatory stop signs shall be on the same post at intersections.
6. All removed signs shall be disposed of in a proper manner by the contractor.
7. All street name signs shall have "D" series letters, with local roadway signs being 4" upper-lower case lettering on 8" blank and non-local roadway signs being 6" lettering, upper-lower case on 12" blank, with a white border that is not recessed. Multi-lane roadways with speed limits of 40 mph or greater shall have 8" upper-lower case lettering on 18" blank with a white border that is not recessed. The width of the non-recessed white borders shall match plate 255 of the 2012 MUTCD "Standard Highway Signs".
8. All traffic signs shall have a minimum High Intensity Prismatic grade sheeting.
9. All local residential street signs shall be mounted on a 1.75" x 1.75" square tube sign post and stub post base. For other applications, refer to the CDOT Standard S-614-8 regarding use of the P2 tubular steel post slabbase design.
10. All signs shall be single sheet aluminum with 0.100" minimum thickness.
11. All limit/stop/stop lines, crosswalk lines, pavement legends, and arrows shall be a minimum 1.25 mil thickness preformed thermoplastic pavement markings with tapered leading edges per CDOT Standard S-627-1. Word and symbol markings shall be the narrow type. Stop bars shall be 24" in width. Crosswalks lines shall be 12" wide and 8" long per CDOT S-627-1.
12. All longitudinal lines shall be minimum 1.5mil thickness epoxy paint. All non-local residential roadways shall include both right and left edge line striping and any additional striping as required by CDOT S-627-1.
13. The contractor shall notify El Paso County Planning and Community Development (719) 520-6819 prior to and upon completion of signing and striping.
14. The contractor shall obtain a work in the right of way permit from the El Paso County Department of Public Works (DPW) prior to any signage or striping work within an existing El Paso County roadway.



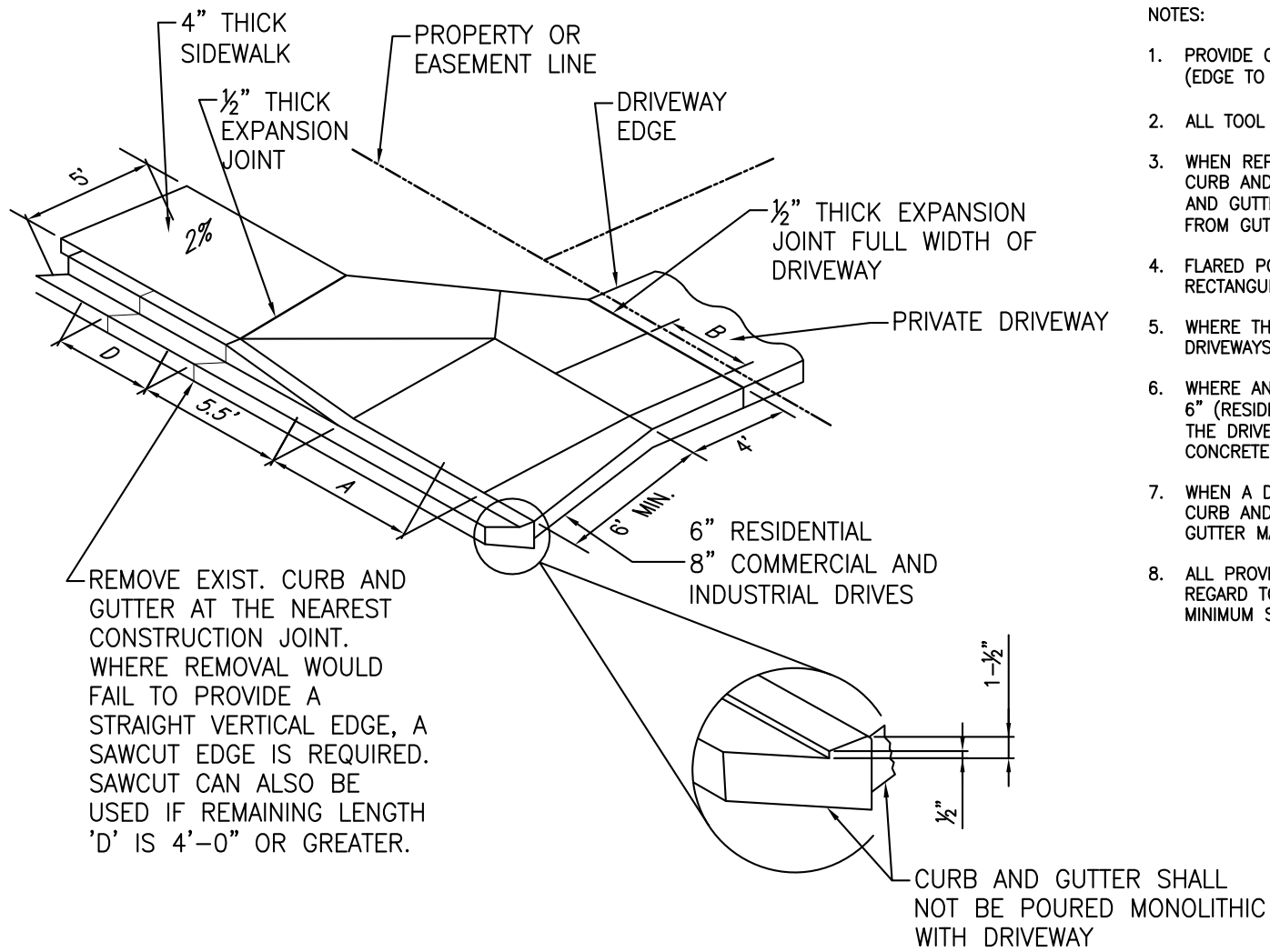




**RAMP CURB AND GUTTER**  
EPC SD. 2-20, EPC OPTIONAL TYPE C  
SCALE: NTS



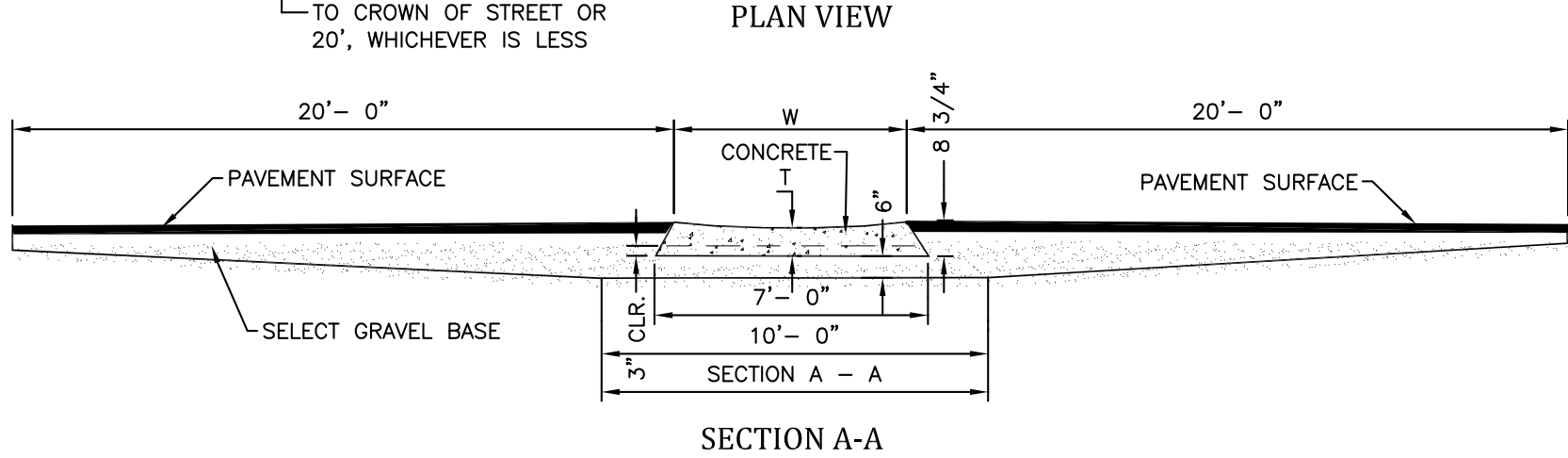
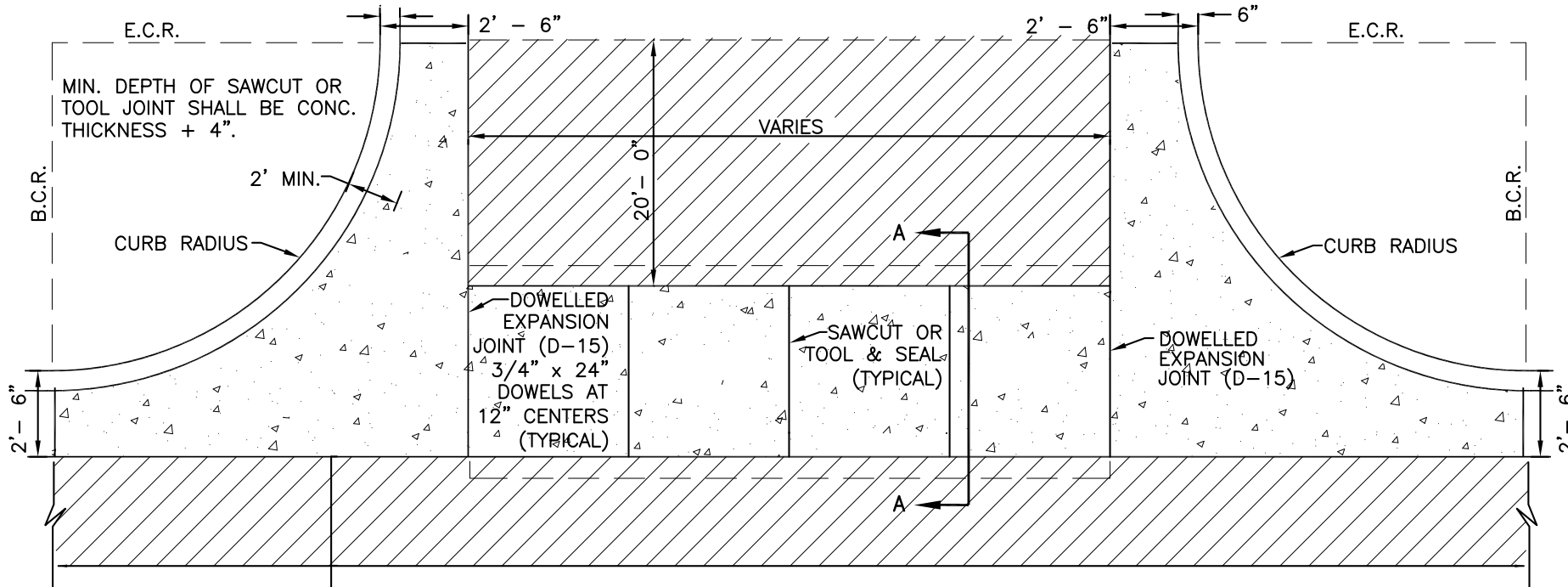
**VERTICAL CURB AND GUTTER**  
EPC SD. 2-20, EPC TYPE A  
SCALE: NTS



**DRIVEWAY DETAIL WITH ATTACHED SIDEWALK**  
EPC STD. SD. 2-24  
NOT TO SCALE

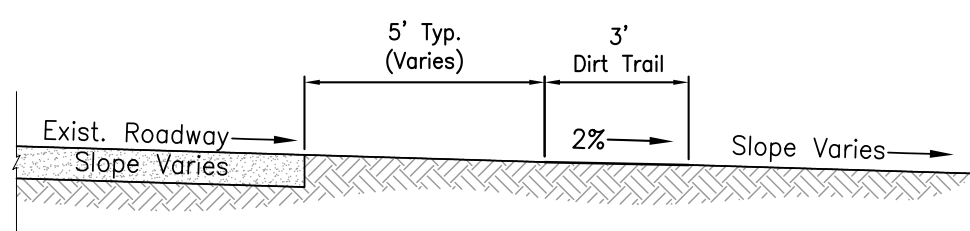
- NOTES:
1. PROVIDE CENTERLINE CONSTRUCTION OR TOOL JOINT WHEN DRIVEWAY WIDTH (EDGE TO EDGE) IS 14' OR GREATER.
  2. ALL TOOL JOINTS SHALL BE A MINIMUM OF 1'-1/2" DEEP.
  3. WHEN REPLACING EXISTING CURB AND GUTTER WITH NEW DRIVEWAY, ENTIRE CURB AND GUTTER SECTION SHALL BE REMOVED AND REPLACED WITH CURB AND GUTTER (VARIABLE-CURB-HEIGHT) AS SHOWN. DO NOT BREAK CURB FROM GUTTER SECTION.
  4. FLARED PORTION OF DRIVEWAY SHALL BE POURED MONOLITHIC WITH MAIN RECTANGULAR PORTION OF DRIVEWAY.
  5. WHERE THERE IS MORE THAN ONE DRIVEWAY ON A LOT, THE SPACING OF THE DRIVEWAYS SHALL MEET REQUIREMENTS IN ECM.
  6. WHERE AN EXISTING SIDEWALK IS IN PLACE, AND ITS THICKNESS IS LESS THAN 6" (RESIDENTIAL) OR 8" (COMMERCIAL AND INDUSTRIAL) THE SIDEWALK THROUGH THE DRIVEWAY SHALL BE REMOVED AND REPLACED WITH PORTLAND CEMENT CONCRETE AT THE REQUIRED THICKNESS.
  7. WHEN A DRIVEWAY IS TO BE TAKEN OUT OF SERVICE, THE ENTIRE LENGTH OF CURB AND GUTTER SHALL BE REMOVED AND REPLACED WITH NEW CURB AND GUTTER MATCHING THE ADJUTING SECTIONS.
  8. ALL PROVISIONS IN THE LAND DEVELOPMENT CODE SHALL BE MET, WITH REGARD TO MINIMUM SETBACK FROM INTERSECTION AND SIDE PROPERTY LINES, MINIMUM SPACING, MAXIMUM WIDTH, ETC.

DRIVEWAY WIDTH	A	B
12'	6'	3'-6"
14'	7'	3'-6"
16'	8'	4'-6"
18'	9'	4'-6"
20'	10'	5'-6"
22'	11'	5'-6"
24'	12'	6'-6"
26'	13'	6'-6"
28'	14'	7'-6"
30'	15'	7'-6"



- NOTES
1. W = WIDTH SHALL BE 6' FOR LOCAL, 8' FOR COLLECTORS, AND 10' FOR ARTERIAL ROADS.
  2. T = SQUARED-OFF RETURN TO BE POURED MONOLITHIC 8" P.C.C. MINIMUM WITH 6x6 - 4.4 W.W.F. OR #4 @ 18" E.W.
  3. = 3" MINIMUM ASPHALT DEPTH (2 LIFTS).
  4. DESIGN TO SPECIFY ELEVATIONS AT PI AND PCR

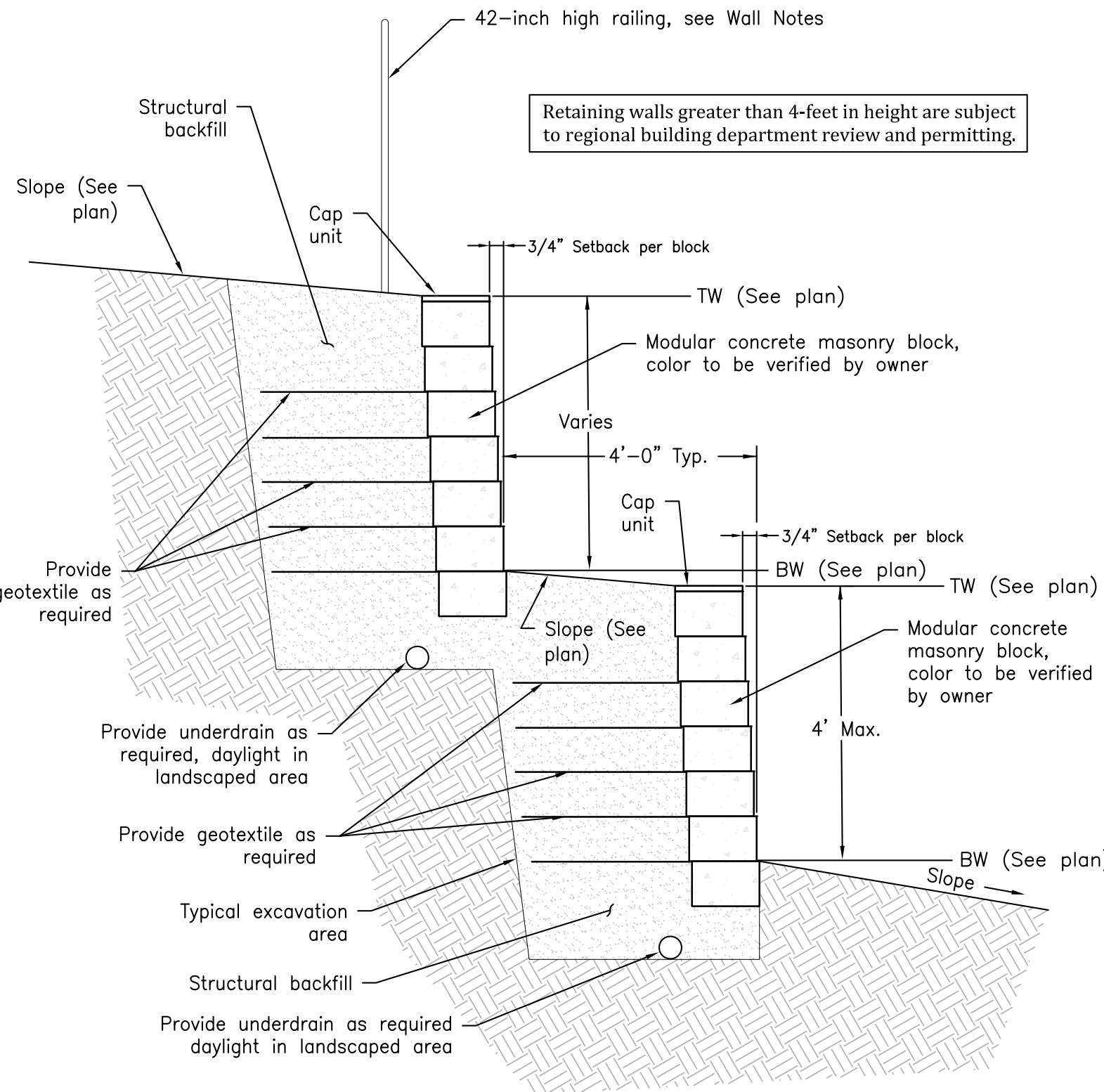
**CROSS PAN DETAIL**  
CS Std. SD. 2-26  
NOT TO SCALE



**DIRT TRAIL CROSS-SECTION (TYP.)**

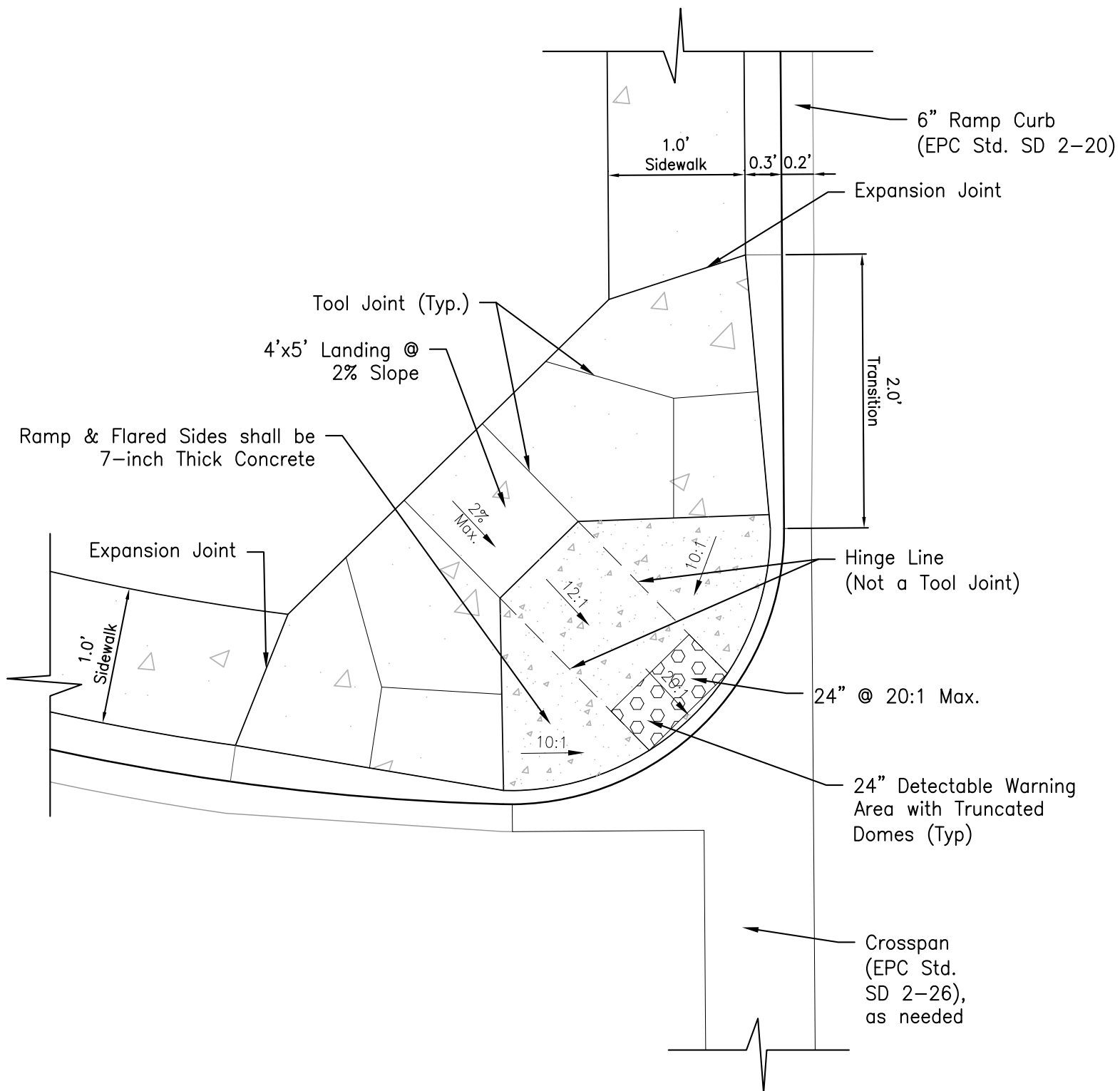
NOTE: Trail to be maintained by HOA

NOT TO SCALE



**MODULAR BLOCK RETAINING WALL DETAIL**

NOT TO SCALE

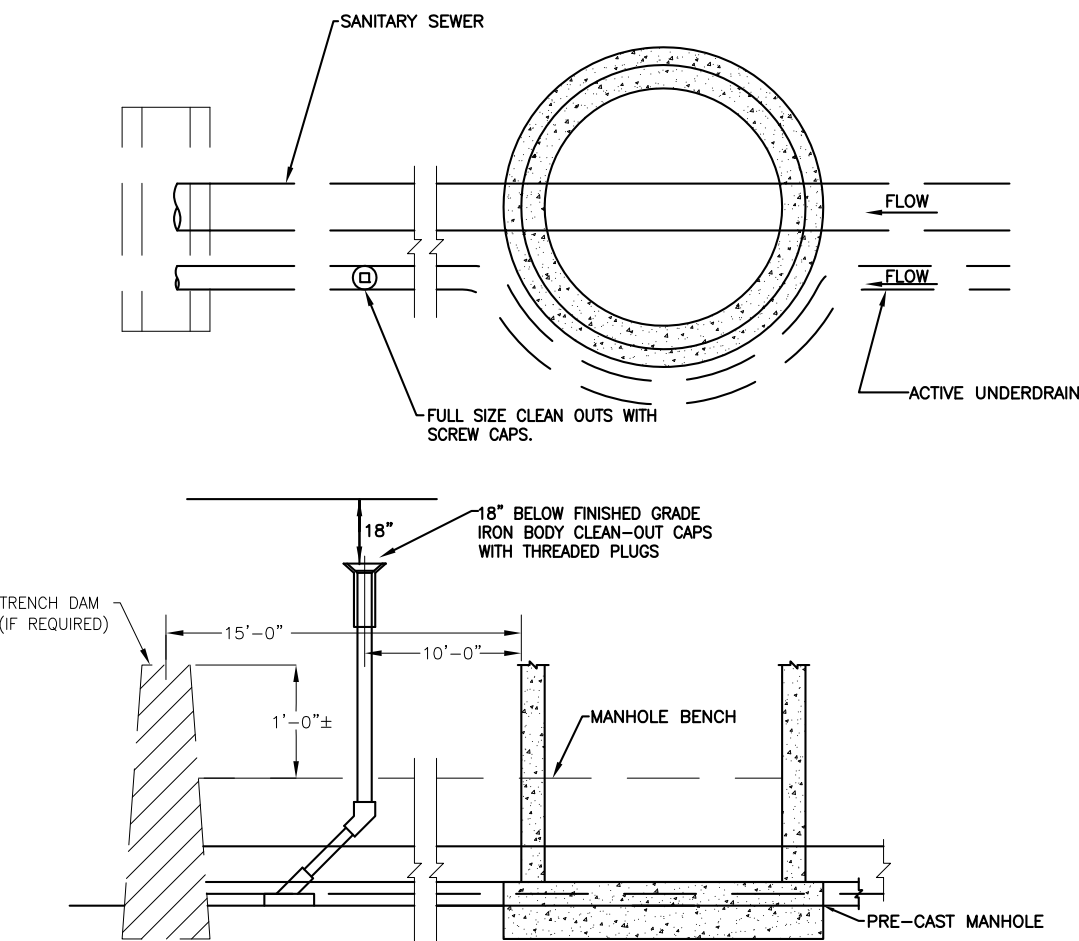


**RADIAL PEDESTRIAN RAMP DETAIL**

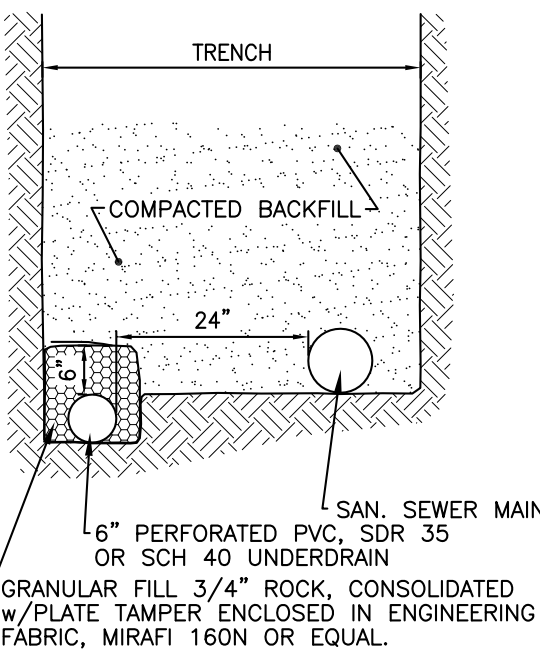
CS Std. D-8H (Modified)  
NOT TO SCALE

WOODMOOR WATER & SANITATION DISTRICT NO. 1  
APPROVED FOR CONSTRUCTION

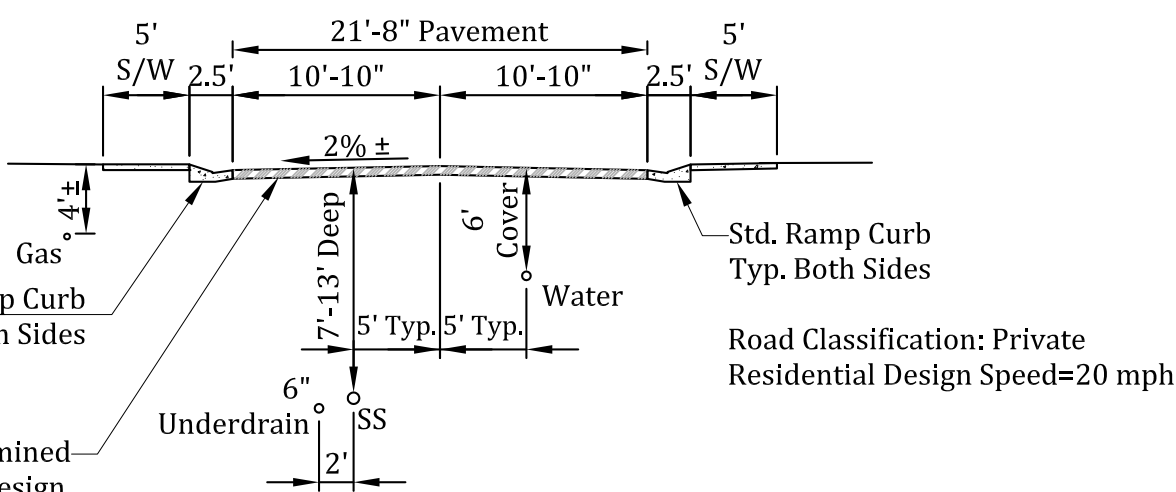
Date: \_\_\_\_\_ By: \_\_\_\_\_  
These plans have been reviewed only for general conformance with District Rules and Regulations and System Specifications. Review and construction approval by the District does not relieve the Developer/Owner and/or Contractor from responsibility for compliance with any Rules, Regulations, or Specifications required by the District.



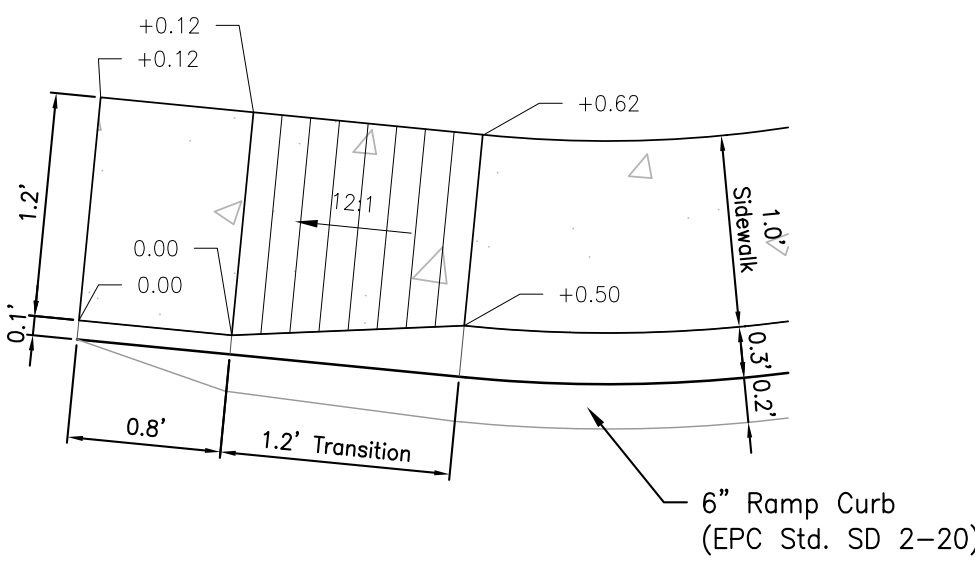
**GROUNDWATER UNDERDRAIN  
CLEANOUT LOCATIONS OUTSIDE MANHOLE**  
NOT TO SCALE



**ACTIVE UNDERDRAIN DETAIL**  
SCALE: N.T.S.



**TYPICAL STREET SECTION  
REDBRIDGE POINT & SHOREDITCH HEIGHTS**  
NOT TO SCALE



**CURB TERMINATION  
WITH RAMP DETAIL**  
Scale: 1" = 5'-0"