

The Beach at Woodmoor Filing No. 1

RESIDENTIAL SUBDIVISION CONSTRUCTION DRAWINGS

Prepared for Lake Woodmoor Holdings, Inc.

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 Planning and Community Development Department (PCD) - 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 PCD. 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 PCD.
- Contractor shall coordinate geotechnical testing per ECM standards. Pavement design shall be approved by El Paso County PCD 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.
- Signing and striping shall comply with El Paso County DOT and MUTCD criteria. [If applicable, additional signing 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 Planning and Community Development Department. Any asphalt to be removed is to be replaced to meet the specifications of the El Paso County Planning and Community Development Department.
- A Pre-Construction meeting shall be held with the El Paso County Planning and Community Development 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 Iven tests and are approved by the El Paso County Planning and Community Development 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 owner 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 El Paso County Planning and Community Development 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 Planning and Community Development Department.
- Sidewalks shall be installed with the construction of other public and improvements. Sidewalk thickness shall be 5-inches where there is potential lot access. Other areas may be 4-inches thick.
- 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

LEGEND

STREET R.O.W.	CURB & GUTTER
STREET CENTER LINE	(CURB SECTION AS SHOWN ON PLANS)
PROPOSED WATER	EXISTING FORCE MAIN
PROPOSED WATER HYDRANT	EXISTING WATER
PROPOSED WATER VALVE	EXISTING WATER HYDRANT
PROPOSED SANITARY MH	EXISTING WATER VALVE
PROPOSED SANITARY SEWER	EXISTING SANITARY MH
PROPOSED STORM SEWER	EXISTING SANITARY SEWER
PROPOSED STORM INLET	EXISTING STORM SEWER
PROPOSED STORM MH	EXISTING STORM INLET
PROPOSED STORM FES	EXISTING STORM MH
PROPOSED BOXBASE MH	EXISTING STORM FES

INDEX OF SHEETS

- Cover Sheet
- Final Grading
- Grading and Erosion Control Details
- Grading and Erosion Control Details
- Grading and Erosion Control Details
- Plan and Profile - Coronado Beach Drive
- Plan and Profile - Captiva Beach Lane
- Utility Plan Cover Sheet
- Utility System Plan
- Utility Services Plan
- Water Plan and Profile - Coronado Beach Drive
- Water Plan and Profile - Captiva Beach Lane
- Storm Sewer Plan and Profile
- Storm Sewer Plan and Profile
- Storm Sewer Details
- Detention Basin B Details
- Detention Basin B Details
- Signage and Striping Plan

VICINITY MAP

SCALE: N.T.S.

SITE MAP

ABBREVIATIONS

ASSY	= ASSEMBLY
BNBY	= BOUNDARY
BOP	= BOTTOM OF PIPE
CL	= CENTERLINE
CRA	= CONCRETE REVERSE ANCHOR
CTRB	= CONCRETE THRUST BLOCK
CR	= POINT OF CURB RETURN
DIP	= DUCTILE IRON PIPE
EL	= ELEVATION
ESMT	= EASEMENT
EX	= EXISTING
FC	= FACE OF CURB
FES	= FLARED END SECTION
FLG	= FLANGE
FL	= FLOWLINE
GB	= GRADE BREAK
GEC	= GRADING & EROSION CONTROL
HP	= HIGH POINT
HORIZ	= HORIZONTAL
HYD	= HYDRANT
I.D.	= INSIDE DIAMETER
LT	= LEFT
LF	= LINEAR FEET
LP	= LOW POINT
MAX	= MAXIMUM
MH	= MANHOLE
MIN.	= MINIMUM
NTS	= NOT TO SCALE
OD	= OUTSIDE DIAMETER
PC	= POINT OF HORIZONTAL CURVATURE
PP	= PROPOSED
PT	= POINT OF HORIZONTAL TANGENCY
PVC	= POLY VINYL CHLORIDE PIPE
PVC	= POINT OF VERTICAL CURVATURE
PVI	= POINT OF VERTICAL INTERSECTION
PVT	= POINT OF VERTICAL TANGENCY
RCB	= REINFORCED CONCRETE BOX
RCP	= REINFORCED CONCRETE PIPE
ROW	= RIGHT OF WAY
RT	= RIGHT
SHT	= SHEET
SS	= SANITARY SEWER
STA	= STATION
STD	= STANDARD
TA	= TOP OF ASPHALT
TC	= TOP OF CURB
TOP	= TOP OF PIPE
TYP	= TYPICAL
VC	= VERTICAL CURVE
VERT	= VERTICAL

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.

Andrew W. McCord, P.E. #25057 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

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.



PREPARED BY:

Kiowa
Engineering Corporation

1804 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342

DEVELOPER:

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

GRADING AND EROSION CONTROL NOTES

- Construction may not commence until a Construction Permit is obtained from Development Services and a Preconstruction Conference is held with Development Services Inspectors.
- Stormwater discharges from construction sites shall not cause or threaten to cause pollution, contamination, or degradation of State Waters. All work and earth disturbance shall be done in a manner that minimizes pollution of any on-site or off site waters, including wetlands.
- 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 to regulations and standards must be requested, and approved, in writing.
- A separate Stormwater Management Plan (SWMP) for this project shall be completed and an Erosion and Stormwater Quality Control Permit (ESQCP) issued prior to commencing construction. During construction the SWMP is the responsibility of the designated Stormwater Manager, shall be located on site at all times and shall be kept up to date with work progress and changes in the field. Once the ESQCP has been issued, the contractor may install the initial stage erosion and sediment control BMPs as indicated on the Grading & Erosion Control Plan. A preconstruction meeting between the contractor, engineer, and El Paso County will be held prior to any construction. It is the responsibility of the applicant to coordinate the meeting time and place with County DSD Inspections staff. Soil erosion control measures for all slopes, channels, ditches, or any disturbed land area shall be completed within 21 calendar days after final grading, or final earth disturbance, has been completed. Disturbed areas and stockpiles which are not at final grade but will remain dormant for longer than 30 days shall also be mulched within 21 days after interim grading. An area that is going to remain in an interim state for more than 60 days shall also be seeded. All temporary soil erosion control measures and BMPs shall be maintained until permanent soil erosion control measures are implemented and established.
- Temporary soil erosion control facilities shall be removed and earth disturbance areas graded and stabilized with permanent soil erosion control measures pursuant to standards and specification prescribed in the *Drainage Criteria Manual DCM Volume II* and the *Engineering Criteria Manual (ECM)* appendix I.
- All persons engaged in earth disturbance shall implement and maintain acceptable soil erosion and sediment control measures including BMPs in conformance with the erosion control technical standards of the *DCM Volume II* and in accordance with the Stormwater Management Plan (SWMP).
- All temporary erosion control facilities including BMPs and all permanent facilities intended to control erosion of any earth disturbance operations, shall be installed as defined in the approved plans, the SWMP and the DCM Volume II and maintained throughout the duration of the earth disturbance operation.
- Any earth disturbance shall be conducted in such a manner so as to effectively reduce accelerated soil erosion and resulting sedimentation. All disturbances shall be designed, constructed, and completed so that the exposed area of any disturbed land shall be limited to the shortest practical period of time.
- Any temporary or permanent facility designed and constructed for the conveyance of stormwater around, through, or from the earth disturbance area shall be designed to limit the discharge to a non-erosive velocity.
- Concrete wash water shall be contained and disposed of in accordance with the SWMP. No wash water shall be discharged to or allowed to runoff to State Waters, including any surface or subsurface storm drainage system or facilities.
- Erosion control blanketing is to be used on slopes steeper than 3:1.
- Building, construction, excavation, or other waste materials shall not be temporarily placed or stored in the street, alley, or other public way, unless in accordance with an approved Traffic Control Plan. BMP's may be required by El Paso County Engineering if deemed necessary, based on specific conditions and circumstances.
- Vehicle tracking of soils and construction debris off-site shall be minimized. Materials tracked offsite shall be cleaned up and properly disposed of immediately.
- Contractor shall be responsible for the removal of all wastes from the construction site for disposal in accordance with local and State regulatory requirements. No construction debris, tree slash, building material wastes or unused building materials shall be buried, dumped, or discharged at the site.
- The owner, site developer, contractor, and/or their authorized agents shall be responsible for the removal of all construction debris, dirt, trash, rock, sediment, and sand that may accumulate in the storm sewer or other drainage conveyance system and stormwater apertures as a result of site development.
- The quantity of materials stored on the project site shall be limited, as much as practical, to that quantity required to perform the work in an orderly sequence. All materials stored on-site shall be stored in a neat, orderly manner, in their original containers, with original manufacturer's labels.
- No chemicals are to be used by the contractor, which have the potential to be released in stormwater unless permission for the use of a specific chemical is granted in writing by the ECM Administrator. In granting the use of such chemicals, special conditions and monitoring may be required.
- Bulk storage structures for petroleum products and other chemicals shall have adequate protection so as to contain all spills and prevent any spilled material from entering State Waters, including any surface or subsurface storm drainage system or facilities.
- No person shall cause the impediment of stormwater flow in the flow line of the curb and gutter or in the ditchline.
- Individuals shall comply with the "Colorado Water Quality Control Act" (Title 25, Article 8, CRS), and the "Clean Water Act" (33 USC 1344), in addition to the requirements included in the DCM Appendix I and the ECM Appendix I. All appropriate permits must be obtained by the contractor prior to construction (NPDES, Floodplain, 404, fugitive dust, etc.). In the event of conflicts between these requirements and laws, rules, or regulations of other Federal, State, or County agencies, the more restrictive laws, rules, or regulations shall apply.
- All construction traffic must enter/exit the site at approved construction access points.
- Prior to actual construction the permittee shall verify the location of existing utilities.
- A water source shall be available on site during earthwork operations and utilized as required to minimize dust from earthwork equipment and wind.
- The soils report for this site has been prepared by CTL Thompson, Inc. and shall be considered a part of these plans.
- At least ten days prior to the anticipated start of construction, for projects that will disturb 1 acre or more, the owner or operator of construction activity shall submit a permit application for stormwater discharge to the Colorado Department of Public Health and Environment, Water Quality Division. The application of completion of a stormwater management plan (SWMP), of which this grading and erosion control plan may be a part. For information or application materials contact:

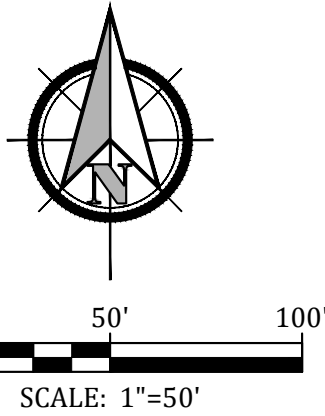
Colorado Department of Public Health and Environment
Water Quality Control Division
WQCD - Permits
4300 Cherry Creek Drive South
Denver, CO 80246-1530
Attn: Permits Unit

PROJECT SPECIFIC GRADING AND EROSION CONTROL NOTES

- All earthwork required of this construction shall be completed in accordance with all applicable sections of the Project Specifications and Soil Investigation Report (Geotechnical Report).
- Rubbish including timber, concrete rubble, trees, brush, and asphalt shall not be backfilled adjacent to any of the structures or be in the placement of any unclassified fill. The Contractor shall be responsible for the removal and hauling of such materials to a suitable spoil area. Costs associated with the removal of such materials shall be paid for as documented in the Project Specifications.
- Excess excavation shall become the property of the Contractor and shall be disposed of at the Contractor's expense. The cost of haulage and spilling of excess excavated materials shall be paid for as documented in the Project Specifications.
- Water shall be used as a dust palliative as required and shall be included in the cost for earthwork item(s). No separate payment will be made for dust control associated with the site construction.
- The road grades shall be cleared of vegetation and the topsoil stockpiled for later use.
- All grading shall be in conformance with the Geotechnical Report for the area.
- Placement of fill for roadway embankments shall be completed in conformance with the Geotechnical Report.
- Grading contours shown on this plan are to final grade.
- Compaction under filled areas, including roadway and detention basin embankments, shall be 95 percent of the maximum Standard Proctor Density (ASTM D698) at two (2) percent of optimum moisture content.
- No rubble or debris shall be placed in the backfill under any of the proposed buildings, streets, curb & gutter, sidewalk and drainage structures or within five (5) feet of a building footprint. Properly graded rubble may be used in some locations as specified and verified by the Geotechnical Engineer.
- Contractor is responsible for reviewing the site prior to bidding to verify site conditions.
- Contractor is responsible for providing erosion control measures as approved by the El Paso County DSD Engineering Division and as may be required by the El Paso County Inspector.
- All slopes equal to or greater than 3:1 shall require anchored soil retention blanket (SRB), Geocor 700 or equal.
- The Developer is responsible for maintaining erosion control measures until a mature stage of vegetation is established.
- All soils used for fill must be approved by a representative of the Geotechnical Engineer.
- All natural ground to receive fill must be properly scarified, watered and compacted prior to placing fill.
- The Contractor is solely responsible for the design, maintenance and operation of any required dewatering system. The Contractor shall perform such independent investigation as he deems necessary to satisfy himself as to the subsurface groundwater conditions and unstable soil conditions to be encountered throughout the construction. Contractor shall coordinate the dewatering system with El Paso County when associated with public facilities.
- No fill shall be placed, spread or rolled while it is frozen, thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until a representative of the Geotechnical Engineer indicates that the moisture content and density of the previously placed fill are as specified. Fill surfaces may be scarified and recompacted after rainfall if necessary, to obtain proper moisture density relation.
- Additional erosion control structures and/or grading may be required at the time of construction.
- Sediment removal for erosion control facilities shall be performed continuously for proper function.
- Base mapping was provided by Rampart Surveys, Inc.
- Proposed Construction Schedule:
Begin Construction: Spring 2018
End Construction: Summer 2019
Total Site Area = 12.30 Acres
- Area to be disturbed = 10.58 Acres (est.)
Existing 100-year runoff coefficient = 0.53
Proposed 100-year runoff coefficient = 0.57
Existing Hydrological Soil Group: B & D
(Pring course sandy loam, and Alamosa loam)
- Site is currently undeveloped and covered with native grasses on gentle slopes (2%-8%).
- Site is located in the Dirty Women Creek Drainage Basin.

EROSION CONTROL LEGEND

- Silt Fence (SF)
- Vehicle Tracking Control (VTC)
- Sediment Control Log (SCL)
- Limit of Disturbance
- Erosion Control Blanket (ECB)
- Inlet Protection (IP)
- Concrete Wash Area (CWA)



LEGEND:

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



Know what's below.
Call before you dig.

Fix the layer order so
the linework/contours
can be seen in the
hatched area.

The Beach at Woodmoor Filing No. 1

Final Grading and Erosion Control Plan
El Paso County, Colorado

Project No.:	16059
Date:	January 16, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	

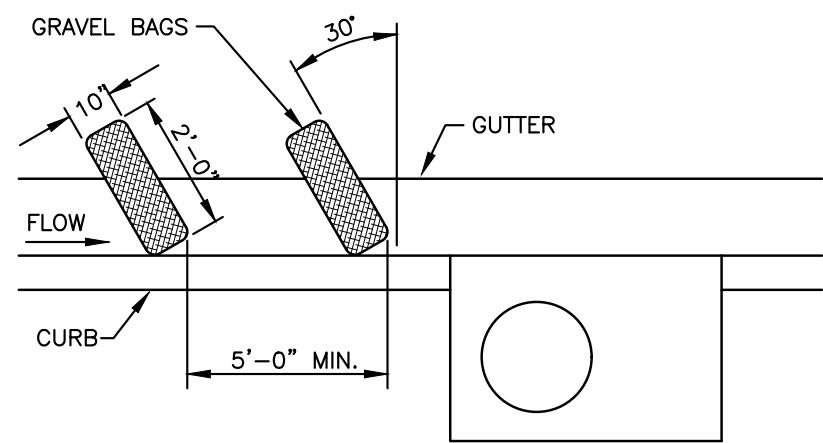
Sheet

2

2 of 21 Sheets

Kiowa
Engineering Corporation

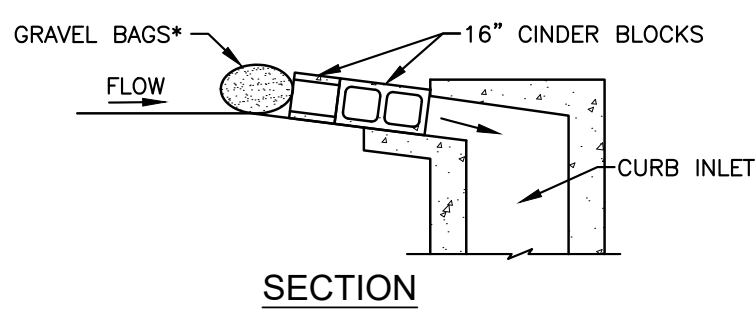
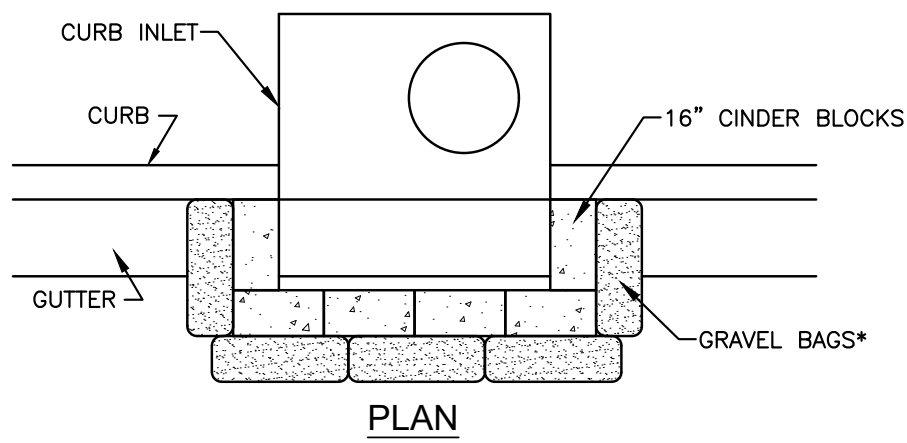
1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342



CURB SOCK INLET PROTECTION

IP-4

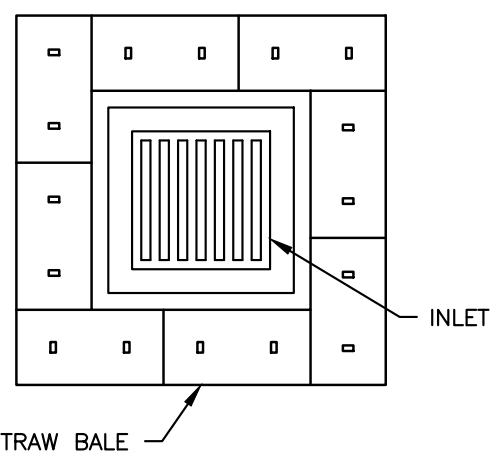
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BLOCK AND GRAVEL BAG INLET PROTECTION

IP-3

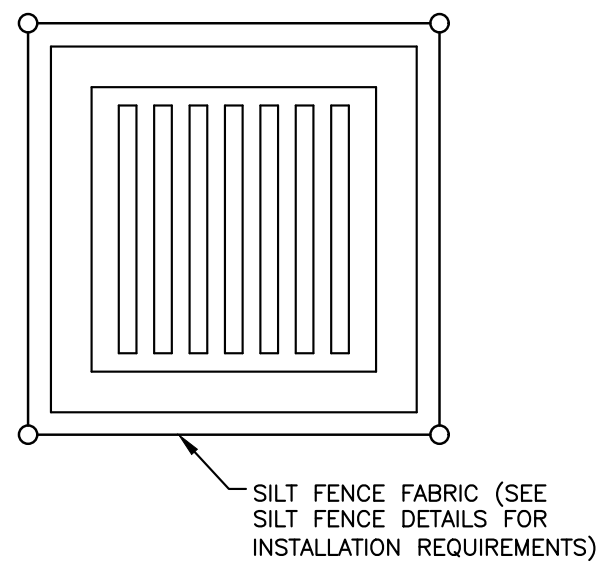
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STRAW BALE INLET PROTECTION

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.

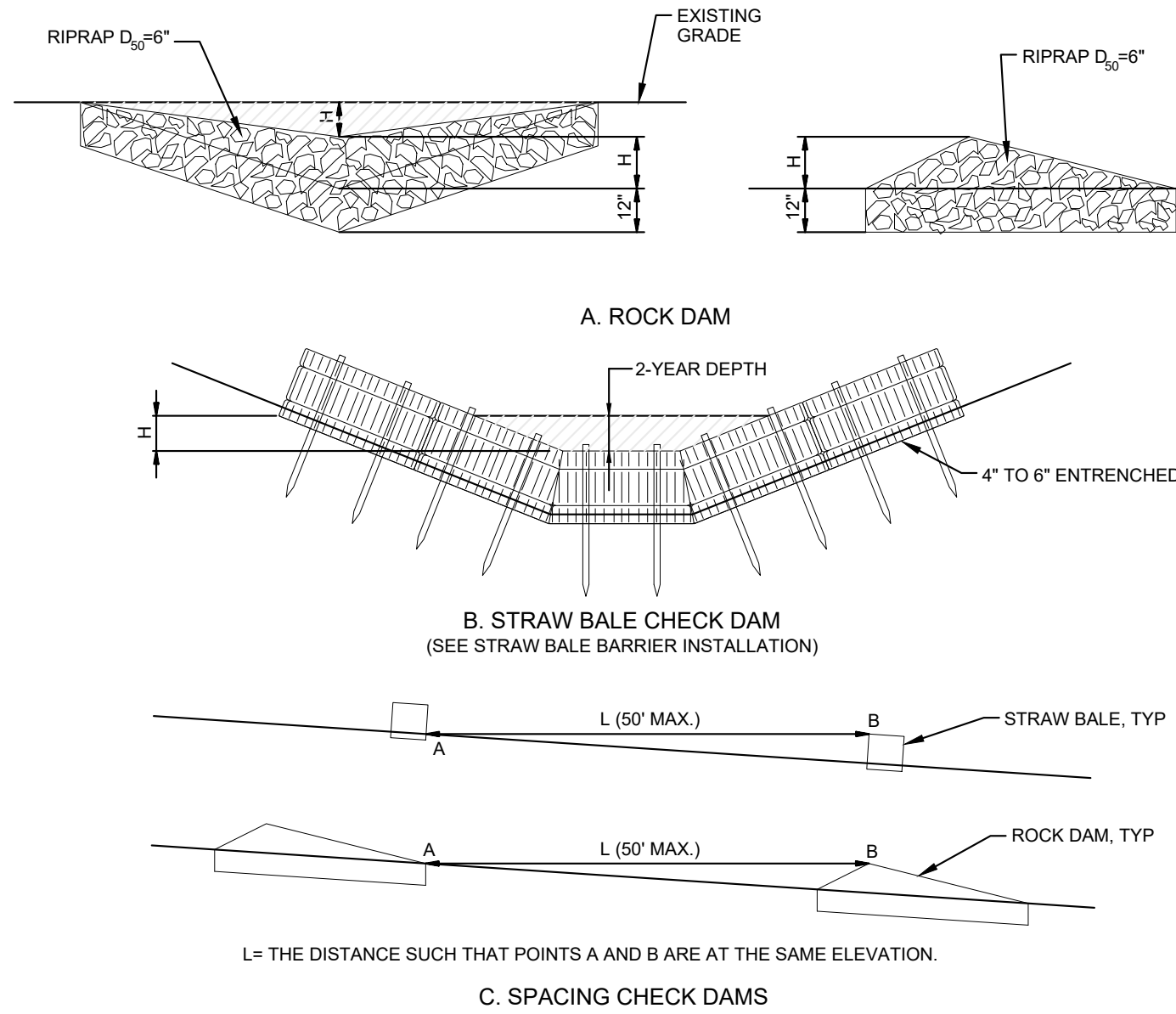
INSTALLATION REQUIREMENTS

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

NTS

CD-A CD-B

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.

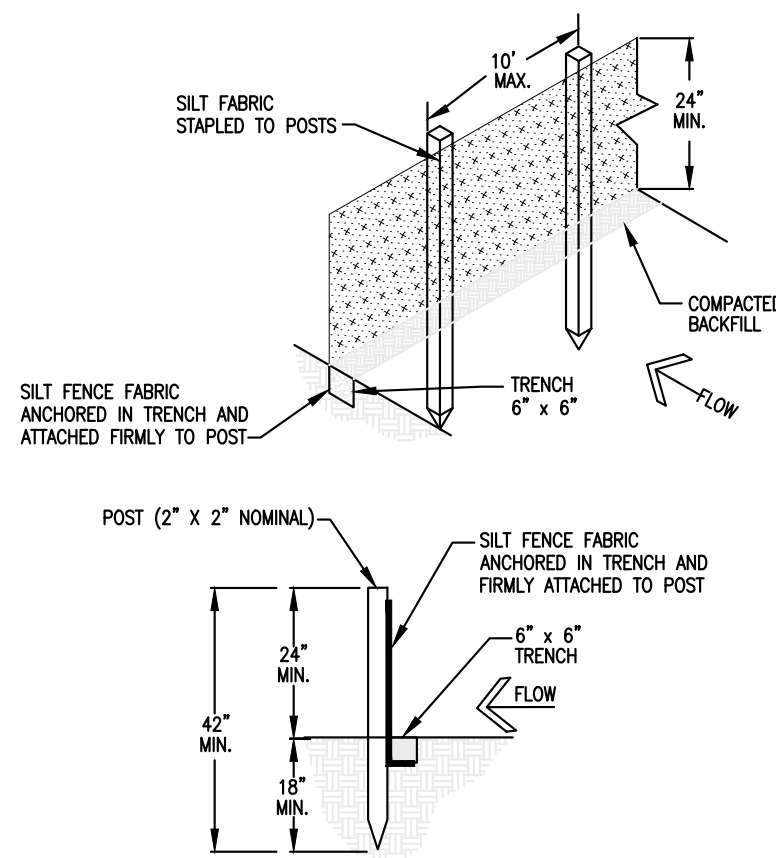
MAINTENANCE REQUIREMENTS

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

NTS

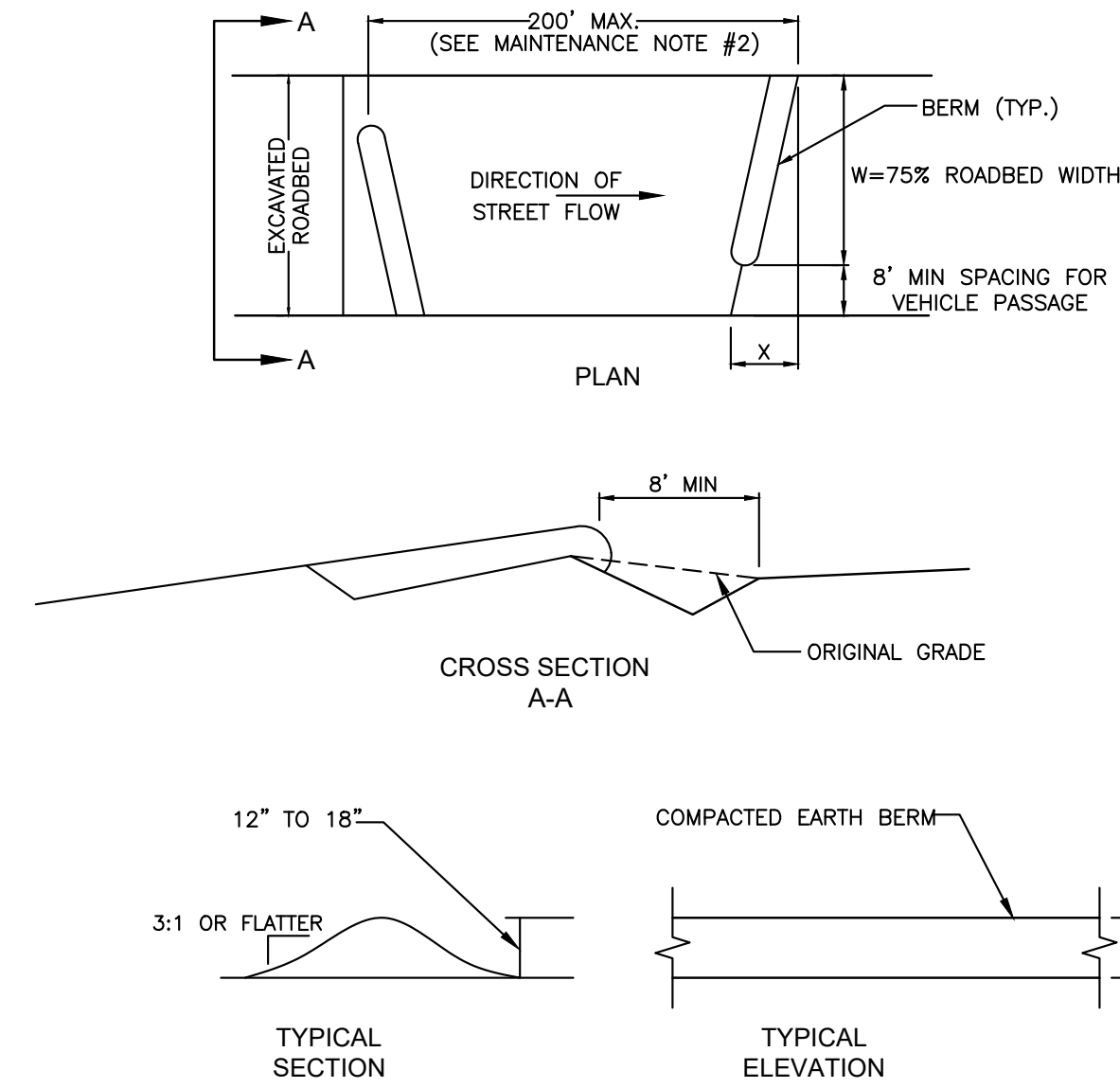
SBB



SILT FENCE DETAIL

NTS

SF

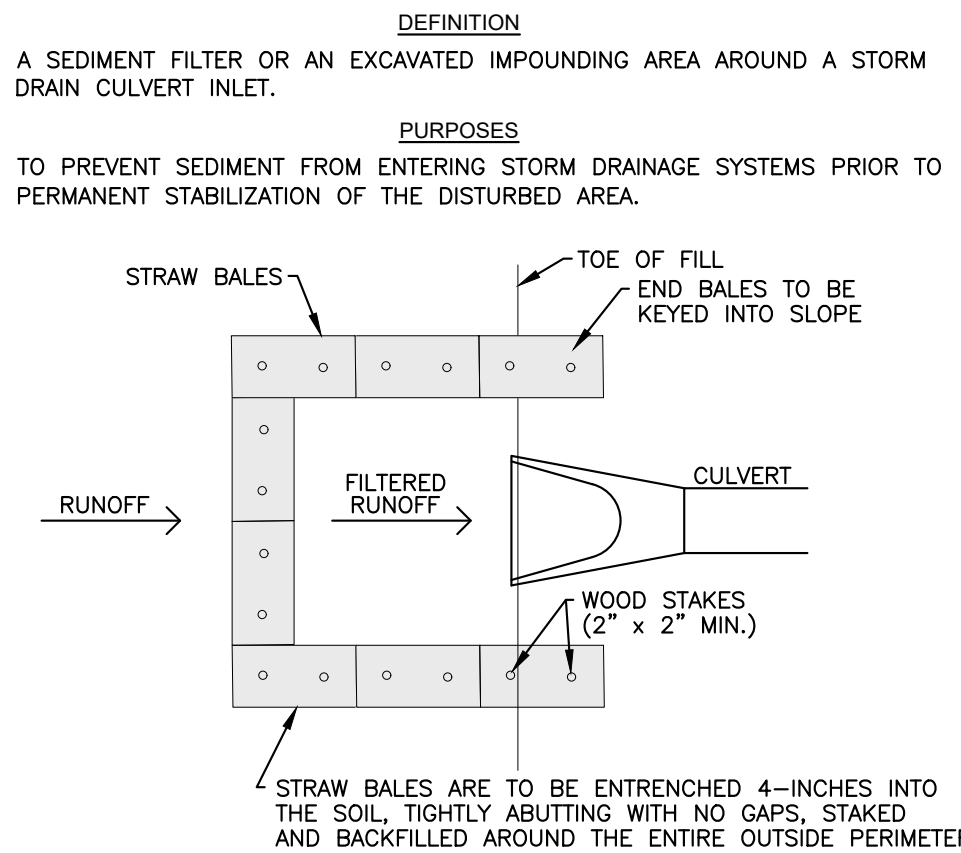


ROUGH-CUT STREET CONTROL

NTS

FOR STREET SLOPES > 4%

RCS



CULVERT INLET PROTECTION

NTS

CIP

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.

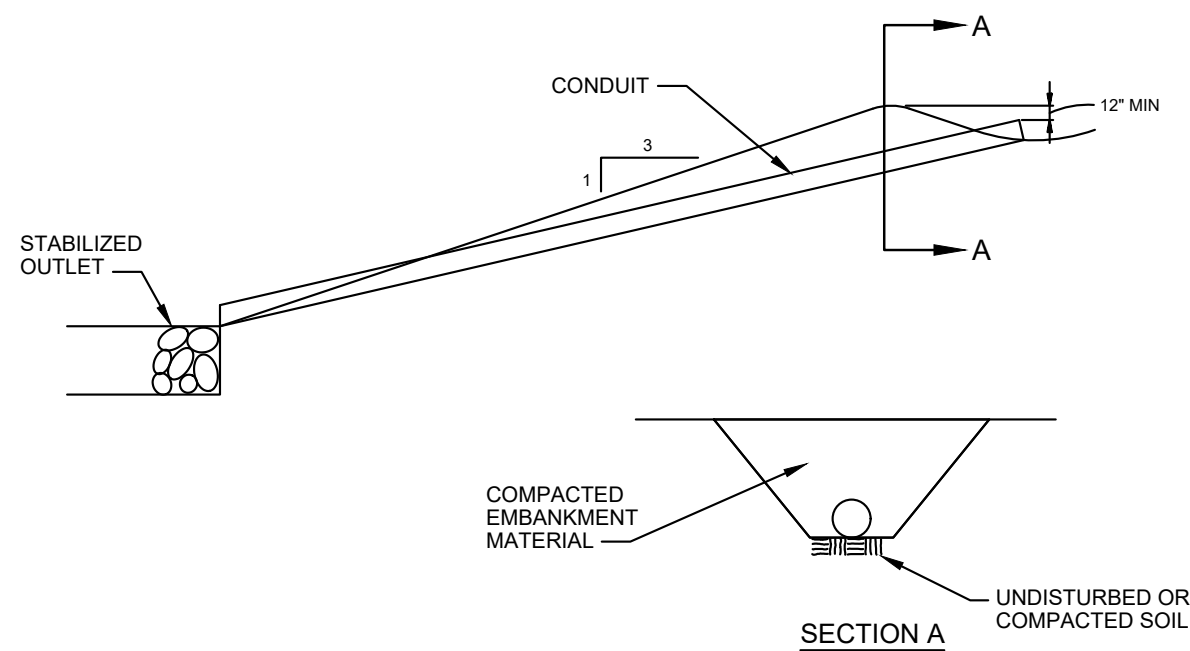
W	X
20' - 30'	5'
31' - 40'	7'
41' - 50'	9'
51' - 60'	10.5'
61' - 70'	12'

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

The Beach at Woodmoor Filing No. 1

Final Grading and Erosion Control Plan
El Paso County, Colorado



TEMPORARY SLOPE DRAIN

NTS

(TSD)

INSTALLATION REQUIREMENTS

1. THE SLOPE DRAIN IS TO BE DESIGNED TO CONVEY THE PEAK RUNOFF FOR THE 2-YEAR STORM.
2. PIPE MATERIAL MAY INCLUDE CORRUGATED METAL, OR RIGID OR FLEXIBLE PLASTIC.
3. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL WITH A MINIMUM OF 15% PASSING A #200 SIEVE. EXCAVATED SOIL CAN BE USED IF IT MEETS THIS REQUIREMENT.
4. EMBANKMENT IS TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D 698.
5. SLOPE DRAIN SECTIONS ARE TO BE SECURELY FASTENED TOGETHER AND HAVE WATERTIGHT FITTINGS.
6. THE OUTLET IS TO BE STABILIZED AND, UNLESS THE DRAIN DISCHARGES DIRECTLY TO A SEDIMENT BASIN, A TEMPORARY SURFACE IS TO BE PROVIDED TO CONVEY FLOWS DOWNSTREAM.
7. IMMEDIATELY STABILIZE ALL AREAS DISTURBED BY INSTALLATION OR REMOVAL OF THE PIPE SLOPE DRAIN.

MAINTENANCE REQUIREMENTS

1. INLET AND OUTLET POINTS ARE TO BE CHECKED REGULARLY, AND AFTER HEAVY STORMS FOR CLOGGING AND OVERCHARGING. ANY BREAKS IN THE PIPE ARE TO BE PROMPTLY REPAIRED, AND CLOGS REMOVED AS NEEDED.
2. WATER IS NOT TO BYPASS OR UNDERCUT THE INLET OR PIPE. IF THESE PROBLEMS DO EXIST, THE HEADWALL NEEDS TO BE REINFORCED WITH COMPACT EARTH OR SANDBAGS.
3. THE OUTLET POINT IS TO BE FREE OF EROSION, AND, IF NECESSARY, ADDITIONAL OUTLET PROTECTION SHOULD BE INSTALLED.
4. CONSTRUCTION TRAFFIC IS NOT TO CROSS THE SLOPE DRAIN AND MATERIALS ARE NOT TO BE PLACED ON IT.
5. THE SLOPE DRAIN IS TO REMAIN IN PLACE UNTIL THE SLOPE HAS BEEN COMPLETELY STABILIZED OR UP TO 30 DAYS AFTER PERMANENT SLOPE STABILIZATION.

TYPE	COCONUT CONTENT	STRAW CONTENT	EXCELSIOR CONTENT	RECOMMENDED NETTING**
STRAW*	—	100%	—	DOUBLE/NATURAL
STRAW-COCONUT	30% MIN	70% MAX	—	DOUBLE/NATURAL
COCONUT	100%	—	—	DOUBLE/NATURAL
EXCELSIOR	—	—	100%	DOUBLE/NATURAL

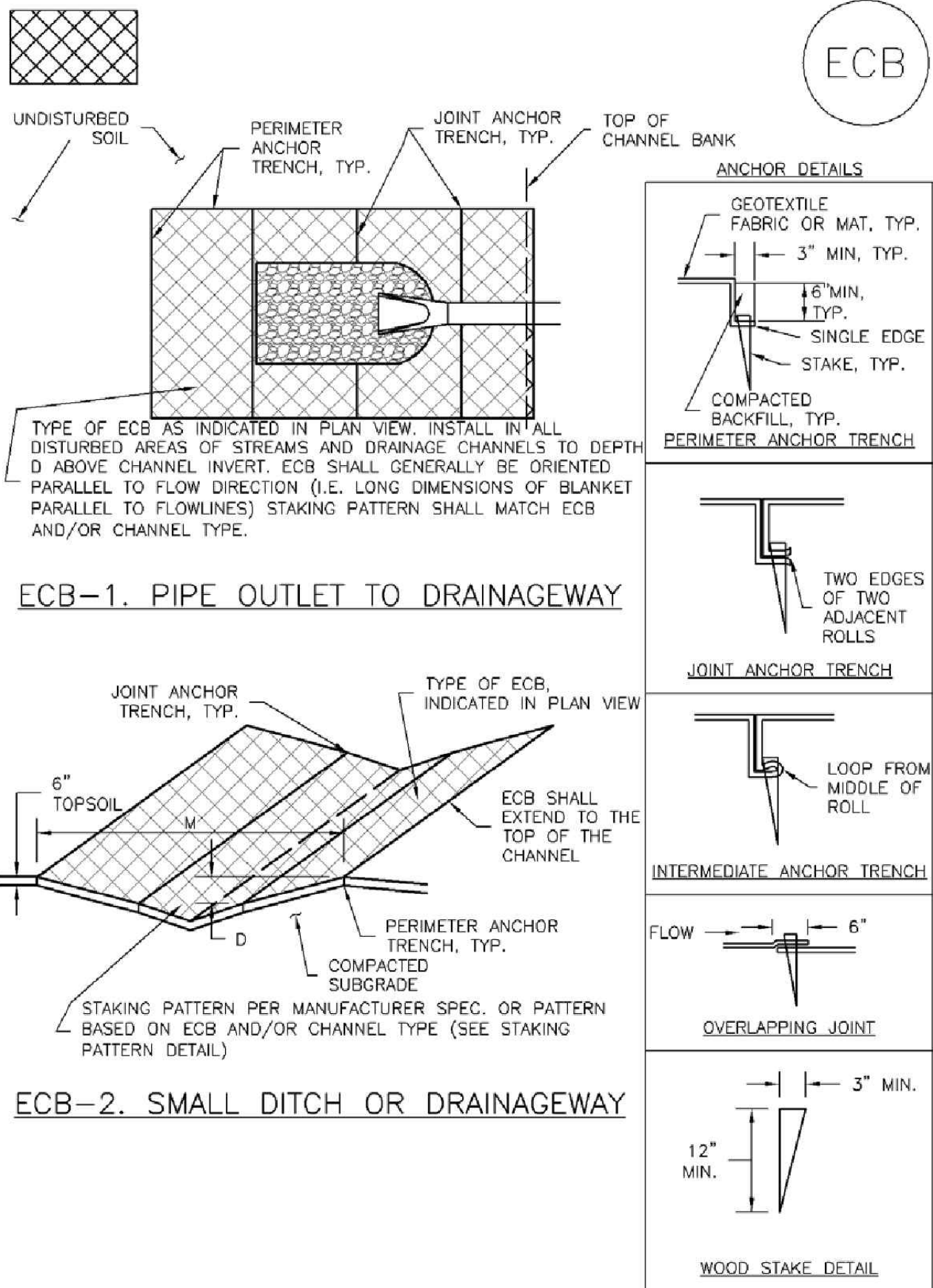
*STRAW ECBs MAY ONLY BE USED OUTSIDE OF STREAMS AND DRAINAGE CHANNEL.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS

EROSION CONTROL BLANKET MAINTENANCE NOTES

1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. ECBs SHALL BE LEFT IN PLACE TO EVENTUALLY BIODEGRADE, UNLESS REQUESTED TO BE REMOVED BY THE LOCAL JURISDICTION.
5. ANY ECB PULLED OUT, TORN, OR OTHERWISE DAMAGED SHALL BE REPAIRED OR REINSTALLED. ANY SUBGRADE AREAS BELOW THE GEOTEXTILE THAT HAVE ERODED TO CREATED A VOID UNDER THE BLANKET, OR THAT REMAIN DEVOID OF GRASS SHALL BE REPAIRED, RESEEDED AND MULCHED AND THE ECB REINSTALLED.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM UDFCD STANDARD DETAILS. CONSULT WITH LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED WHEN DIFFERENCES ARE NOTED.

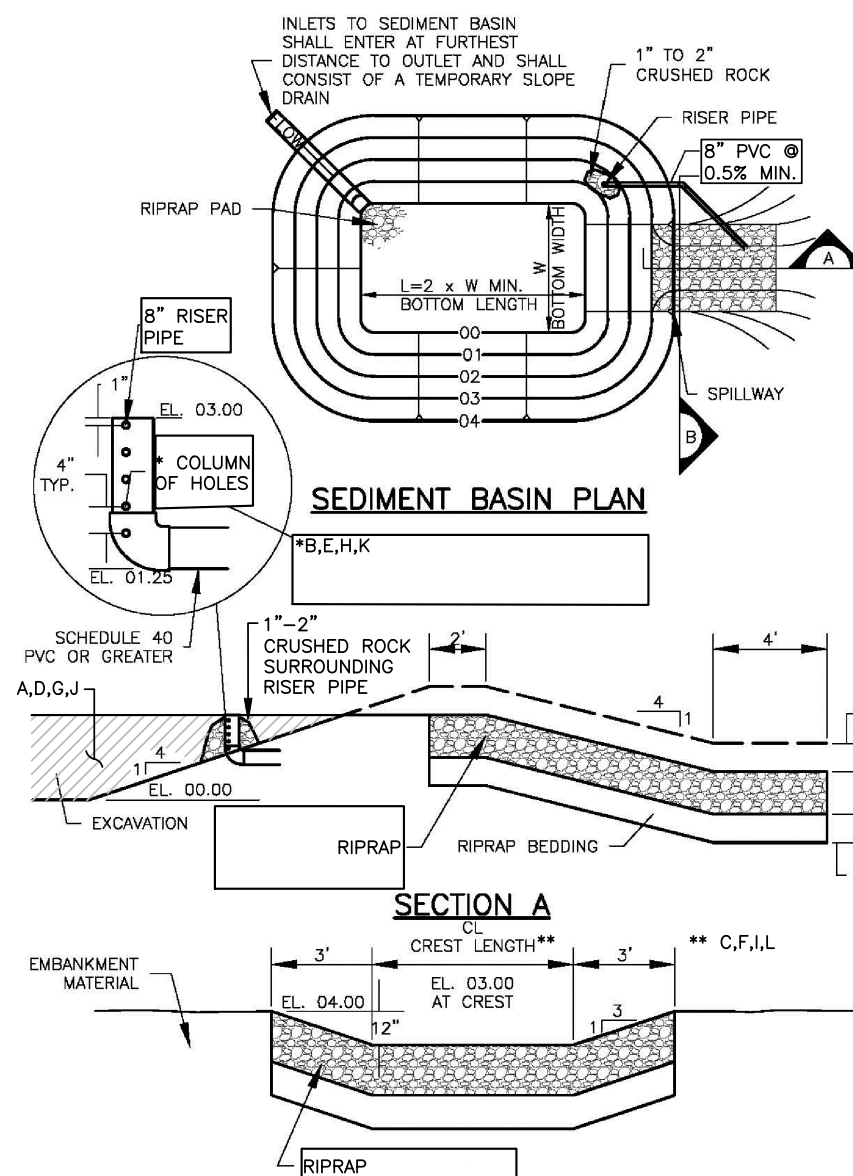
(DETAILS ADAPTED FROM DOUGLAS COUNTY, COLORADO AND TOWN OF PARKER COLORADO, NOT AVAILABLE IN AUTOCAD)



EROSION CONTROL BLANKET

NTS

(ECB)



SEDIMENT BASIN INSTALLATION NOTES

1. SEE PLAN VIEW FOR:
 - LOCATION OF SEDIMENT BASIN.
 - TYPE OF BASIN (STANDARD BASIN OR NONSTANDARD BASIN).
 - FOR STANDARD BASIN, BOTTOM WIDTH W, CREST LENGTH CL, AND HOLE DIAMETER, HD.
 - FOR NONSTANDARD BASIN, SEE CONSTRUCTION DRAWINGS FOR DESIGN OF BASIN INCLUDING RISER HEIGHT H, NUMBER OF COLUMNS N, HOLE DIAMETER HD AND PIPE DIAMETER D.
2. FOR STANDARD BASIN, BOTTOM DIMENSION MAY BE MODIFIED AS LONG AS BOTTOM AREA IS NOT REDUCED.
3. SEDIMENT BASINS SHALL BE INSTALLED PRIOR TO ANY OTHER LAND-DISTURBING ACTIVITY THAT RELIES ON OR BEGINS AS A STORMWATER CONTROL.
4. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3 INCHES AND SHALL HAVE A MINIMUM OF 15 PERCENT BY WEIGHT PASSING THE NO. 200 SIEVE.
5. EMBANKMENT MATERIAL SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698.
6. PIPE SCH 40 OR GREATER SHALL BE USED.
7. THE DETAILS SHOWN ON THESE SHEETS PERTAIN TO STANDARD SEDIMENT BASIN(S) FOR DRAINAGE AREAS LESS THAN 15 ACRES. SEE CONSTRUCTION DRAWINGS FOR EMBANKMENT, STORAGE VOLUME, SPILLWAY, OUTLET, AND OUTLET PROTECTION DETAILS FOR ANY SEDIMENT BASIN(S) THAT HAVE BEEN INDIVIDUALLY DESIGNED FOR DRAINAGE AREAS LARGER THAN 15 ACRES.

SEDIMENT BASIN MAINTENANCE NOTES

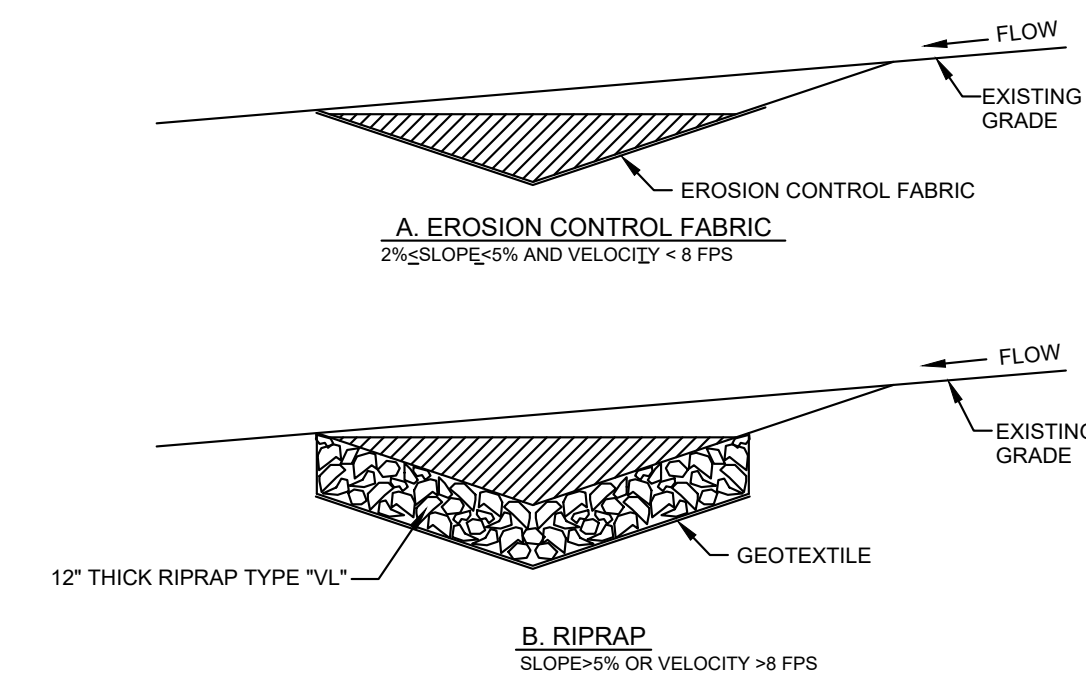
1. INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
2. FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
3. WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
4. SEDIMENT ACCUMULATED IN BASIN SHALL BE REMOVED AS NEEDED TO MAINTAIN BMP EFFECTIVENESS, TYPICALLY WHEN SEDIMENT DEPTH REACHES ONE FOOT (I.E., TWO FEET BELOW THE SPILLWAY CREST).
5. SEDIMENT BASINS ARE TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND GRASS COVER IS ACCEPTED BY THE LOCAL JURISDICTION.
6. WHEN SEDIMENT BASINS ARE REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDS AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

TEMPORARY SEDIMENT BASIN "A"

- 0.38 ac-ft REQUIRED TO SPILLWAY CREST.
- 8" PVC PERFORATED RISER PIPE, PERFORATIONS VERTICALLY SPACED 4" APART, 1 COLUMN OF 5 1/2" # HOLES.
- 8' LONG SPILLWAY, 1' DEPTH, LINED WITH 24" THICK TYPE "W" RIPRAP TO TOE OF SLOPE.

TEMPORARY SEDIMENT BASIN

(TSB)



SWALE LINING

NTS

(SLA)

(SLB)

INSTALLATION REQUIREMENTS

1. REFER TO THE MANUFACTURER'S INSTALLATION SPECIFICATIONS FOR PROPER INSTALLATION OF EROSION CONTROL FABRIC LINING.
2. SWALES WITH EASILY ERODIBLE SOILS AND SLOPES LESS THAN 2%, SHALL BE LINED WITH EROSION CONTROL FABRIC.
3. VELOCITIES FOR EROSION CONTROL FABRICS SHALL NOT EXCEED 6 FPS. SWALES WITH VELOCITIES GREATER THAN 6 FPS SHALL BE LINED WITH RIP RAP.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT SWALE LININGS AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS OF NO RAINFALL.
2. DAMAGED LININGS SHALL IMMEDIATELY BE REPAIRED.
3. REFER TO THE EROSION CONTROL BLANKETS FACTSHEET FOR PROPER MAINTENANCE.
4. DISPLACED RIPRAP OR COARSE AGGREGATE IS TO BE REPLACED AS SOON AS POSSIBLE.
5. SWALE LININGS ARE TO REMAIN IN PLACE AND BE PROPERLY MAINTAINED UNTIL THE TEMPORARY SWALE IS REMOVED.

MAINTENANCE REQUIREMENTS

1. CONTRACTOR SHALL INSPECT SWALES AFTER EACH RAINFALL, AT LEAST DAILY DURING PROLONGED RAINFALL AND WEEKLY DURING PERIODS OF NO RAINFALL.
2. SWALES SHALL BE ROUTINELY CLEARED OF ANY DEBRIS OR ACCUMULATION OF SEDIMENT.
3. ERODED SLOPES OR DAMAGED LININGS SHALL IMMEDIATELY BE REPAIRED.
4. TEMPORARY SWALES 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.

INSTALLATION REQUIREMENTS

1. TEMPORARY SWALES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
2. THE AREA UNDER WHICH THE EMBANKMENT IS TO BE INSTALLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATION AND ROOT MAT.
3. EMBANKMENT MATERIAL SHALL CONSIST OF SOIL WITH A MINIMUM OF 15% PASSING A #200 SIEVE. EXCAVATED SOIL CAN BE USED IF IT MEETS THIS REQUIREMENT.
4. EMBANKMENT IS TO BE COMPACTED TO AT LEAST 90% OF MAXIMUM DENSITY AND WITHIN 2% OF OPTIMUM MOISTURE CONTENT ACCORDING TO ASTM D 698.
5. SWALES WITH SLOPE > 2% SHALL BE LINED, SEE FIGURE TSW-3.
6. SWALES ARE TO DRAIN INTO A SEDIMENT BASIN OR OTHER STABILIZED OUTLET.
7. Z SHALL BE 3 OR GREATER.

TEMPORARY SWALE

NTS

(TS)

NOTE:

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The Beach at Woodmoor Filing No. 1

Final Grading and Erosion Control Plan
El Paso County, Colorado

Project No.:	16059
Date:	January 16, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	

Sheet

4

4 of 21 Sheets

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, "D₅₀".
- 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

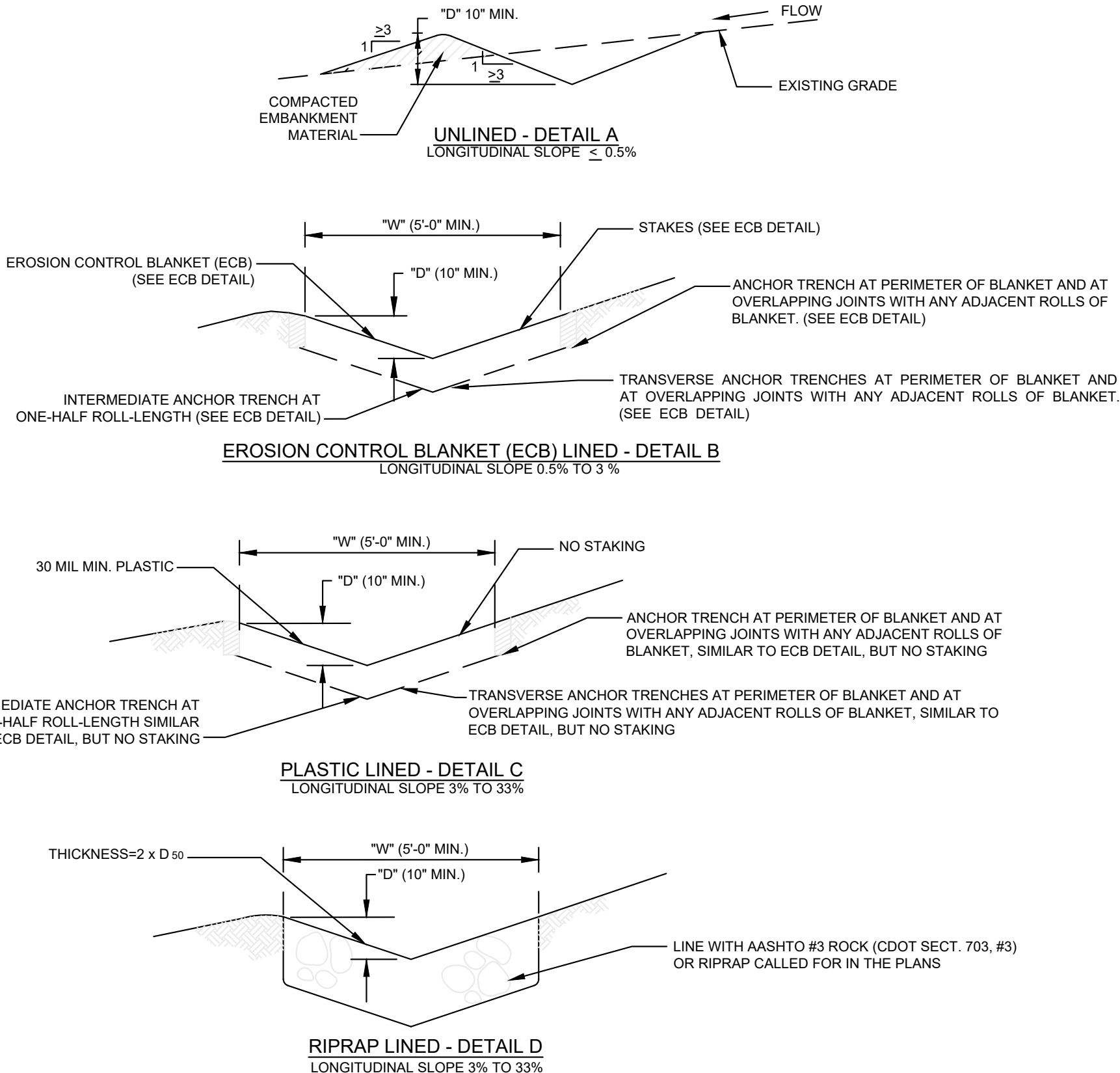
- THE SWMP MANAGER SHALL INSPECT DIVERSION DITCHES WEEKLY AND DURING AND AFTER ANY STORM. MAKE REPAIRS AS NECESSARY.
- DIVERSION DITCHES ARE TO REMAIN IN PLACE UNTIL THE END OF CONSTRUCTION, OR IF APPROVED BY LOCAL JURISDICTION MAY BE LEFT IN PLACE.
- IF DIVERSION DITCHES ARE REMOVED, DISTURBED AREA 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.

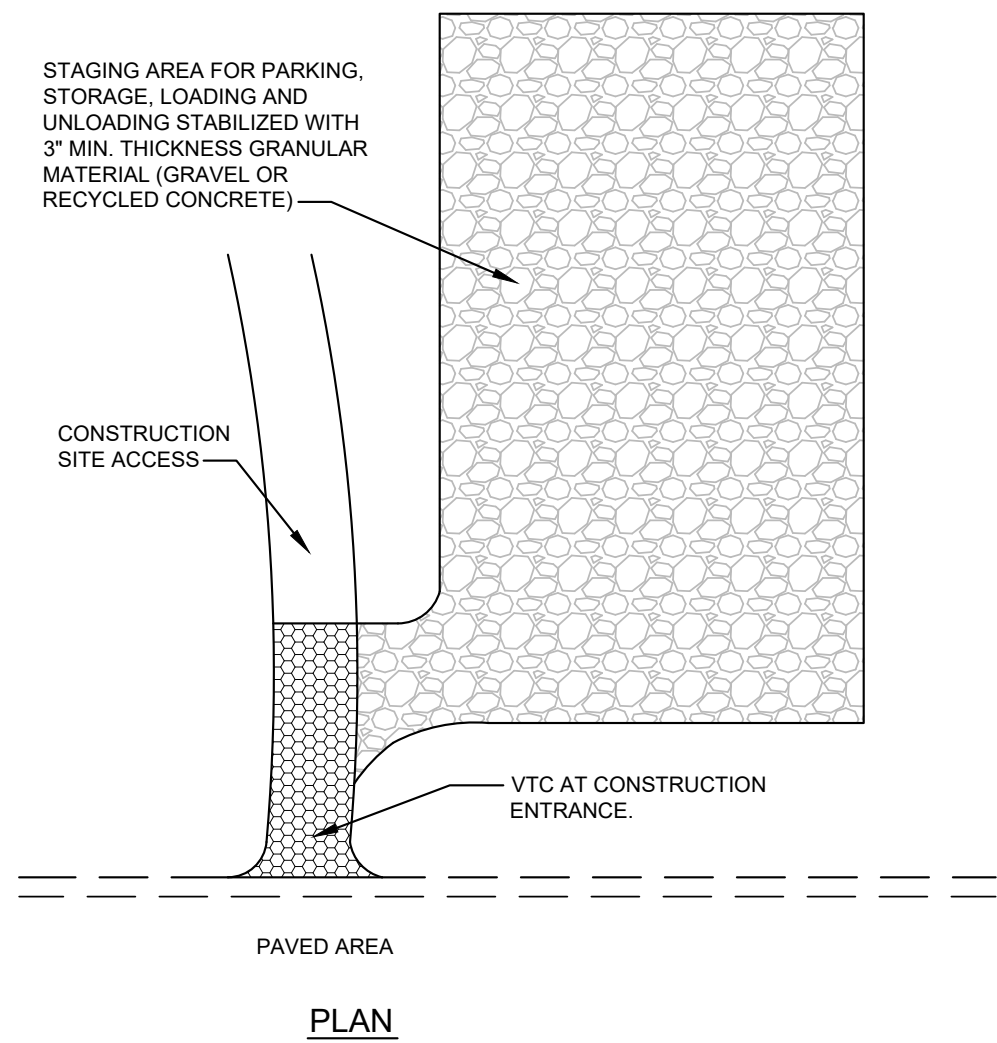
MAINTENANCE REQUIREMENTS

- 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.



TEMPORARY DIVERSION DIKE
NTS

TDD



STABILIZED STAGING AREA
NTS

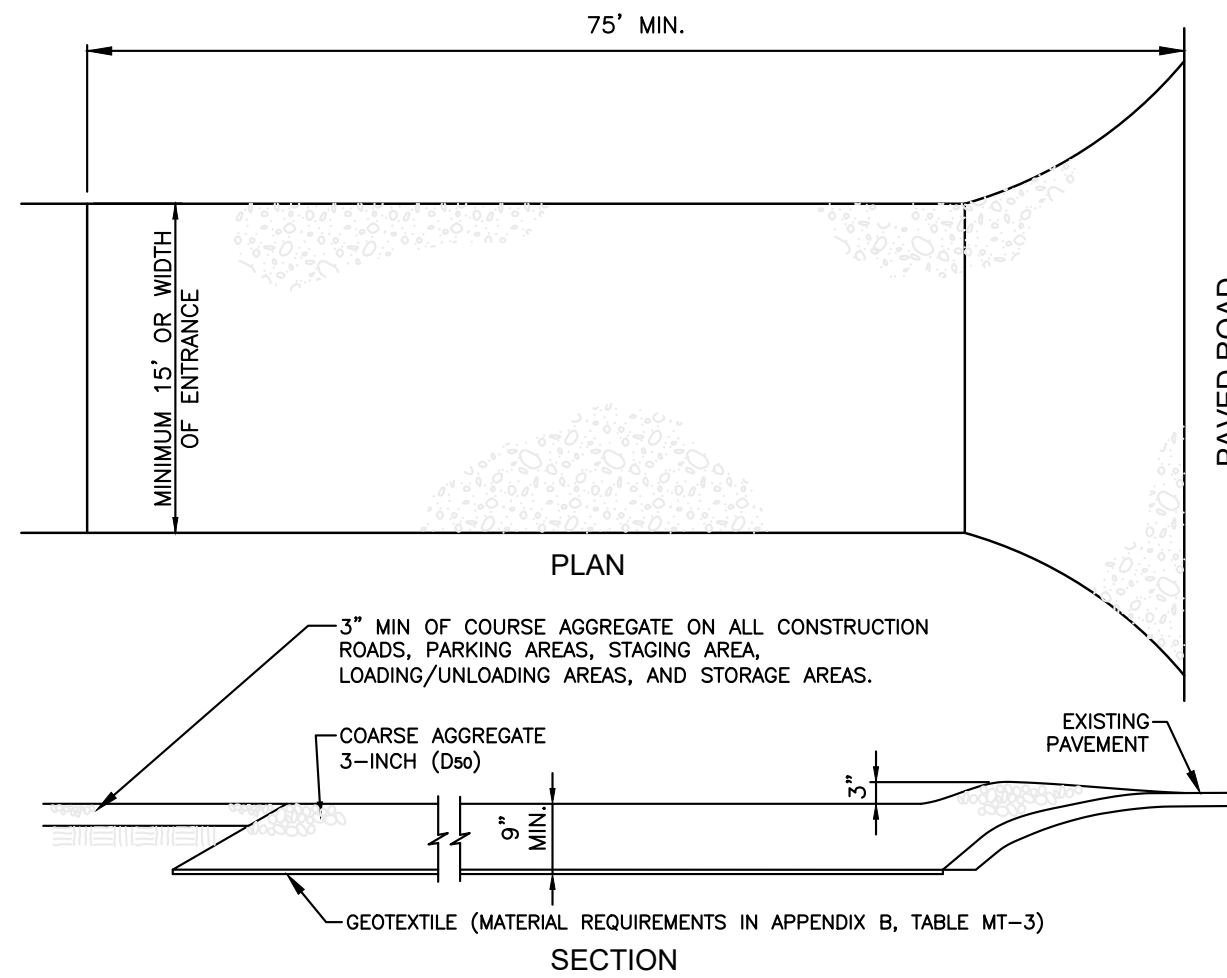
SSA

INSTALLATION REQUIREMENTS

- SEE GEC FOR GENERAL LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH COUNTY APPROVAL.
- STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
- IF REQUIRED BY THE COUNTY, SITE ACCESS ROADS SHALL BE STABILIZED IN THE SAME MANNER AS THE STAGING AREA.
- STAGING AREA SHALL BE STABILIZED PRIOR TO ANY OTHER OPERATIONS ON THE SITE.
- THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" OF GRANULAR MATERIAL (GRAVEL OR RECYCLED CONCRETE).

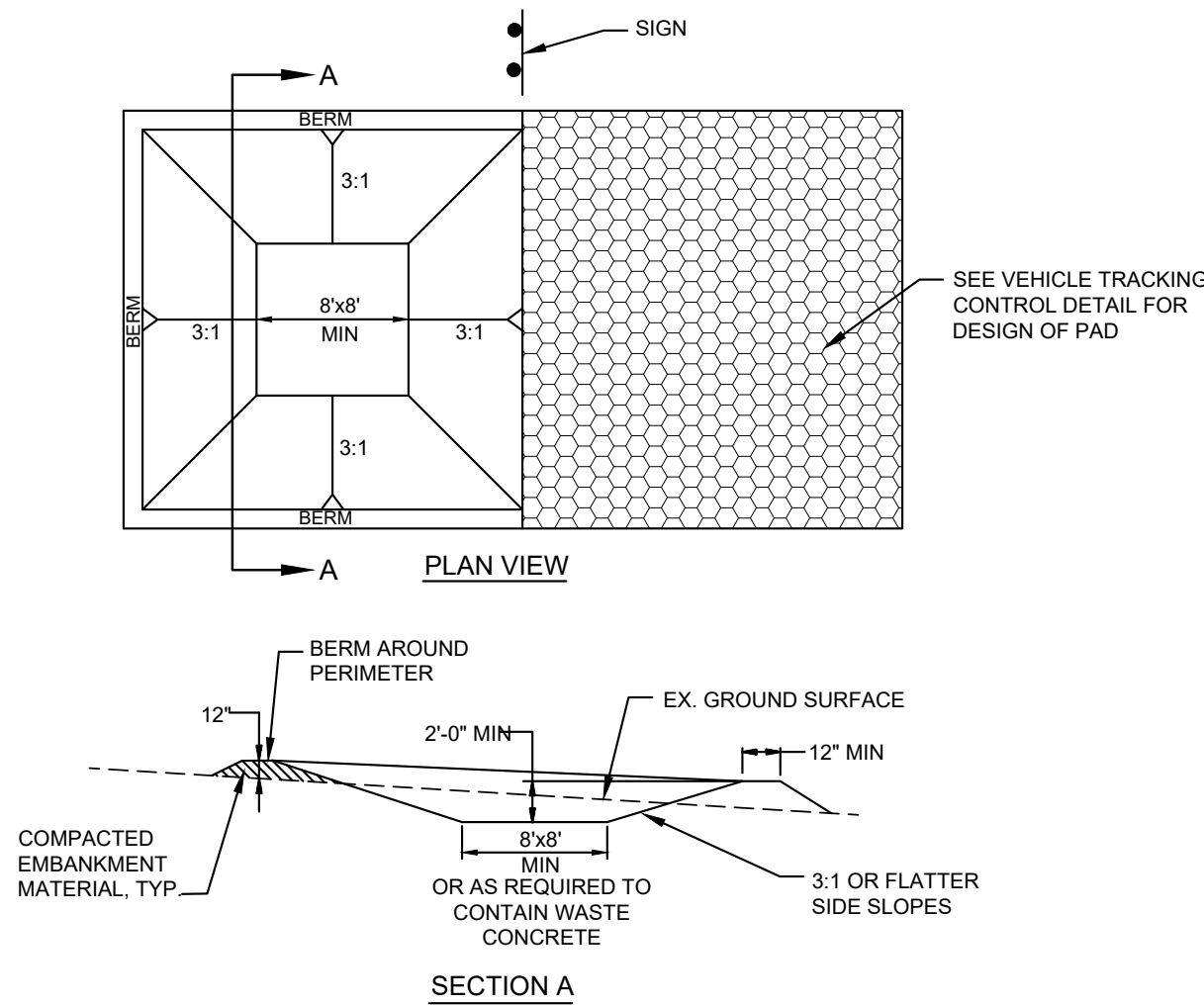
MAINTENANCE REQUIREMENTS

- THE GESC MANAGER SHALL INSPECT THE STABILIZED STAGING AREA WEEKLY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
- GESC MANAGER SHALL PROVIDE ADDITIONAL THICKNESS OF GRANULAR MATERIAL IF ANY RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.
- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING AND LOADING OPERATIONS.
- ANY ACCUMULATED DIRT OR MUD SHALL BE REMOVED FROM THE SURFACE OF THE STABILIZED STAGING AREA.
- THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE COUNTY, USED ON SITE, AND THE AREA TOPSOILED, DRILL SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED.



VEHICLE TRACKING CONTROL
NTS

VTC



CONCRETE WASHOUT AREA
NTS

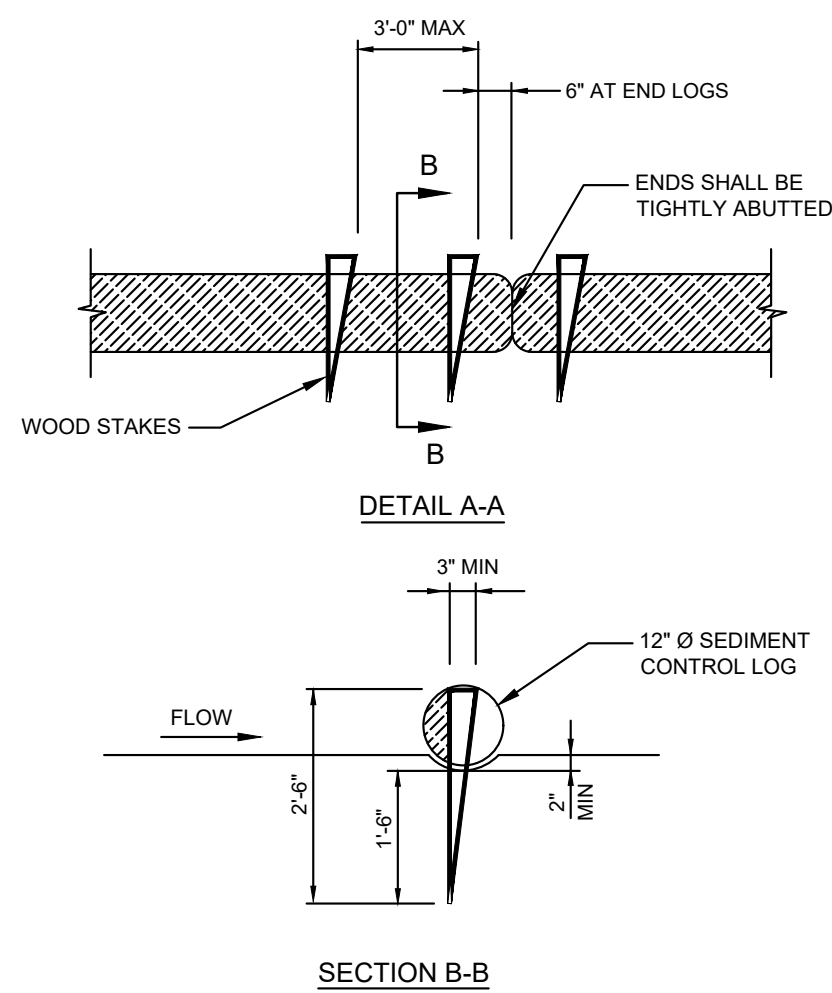
CWA

INSTALLATION REQUIREMENTS

- SEE GEC FOR LOCATIONS OF CONCRETE WASHOUT AREA.
- THE CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT SITE.
- VEHICLE TRACKING CONTROL IS REQUIRED AT THE ACCESS POINT.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE WASHOUT AREA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CONCRETE WASHOUT AREA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- EXCAVATED MATERIAL SHALL BE UTILIZED IN PERIMETER BERM CONSTRUCTION.

MAINTENANCE REQUIREMENTS

- THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
- AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE.
- WHEN THE CONCRETE WASHOUT AREA IS REMOVED, COVER THE DISTURBED AREA WITH TOPSOIL, DRILL, SEEDED AND CRIMP MULCH OR OTHERWISE STABILIZE IN A MANNER APPROVED BY THE LOCAL JURISDICTION.
- INSPECT WEEKLY, AND DURING AND AFTER ANY STORM EVENT.



SEDIMENT CONTROL LOG
NTS

SCL

INSTALLATION REQUIREMENTS

- SEE GEC FOR:
 - LOCATION, LENGTH AND WIDTH OF SEDIMENT CONTROL LOG.
- SEDIMENT CONTROL LOGS INDICATED ON INITIAL GESC PLAN SHALL BE INSTALLED PRIOR TO ANY LAND-DISTURBING ACTIVITIES.
- SEDIMENT CONTROL LOGS SHALL CONSIST OF STRAW, COMPOST, EXCELSIOR, OR COCONUT FIBER.
- NOT FOR USE IN CONCENTRATED AREAS.
- THE SEDIMENT CONTROL LOG SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 2'.

MAINTENANCE REQUIREMENTS

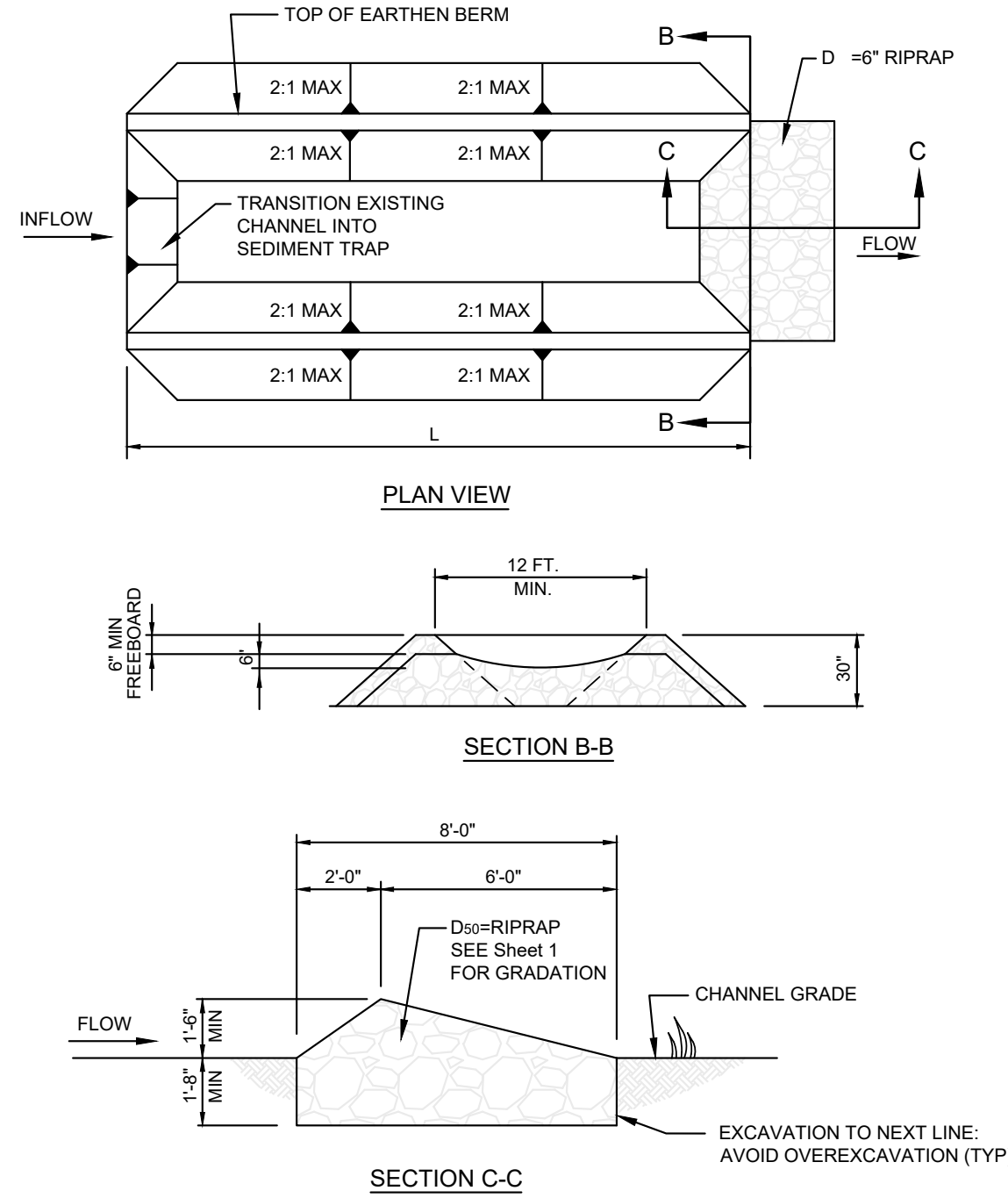
- THE GESC MANAGER SHALL INSPECT SEDIMENT CONTROL LOGS DAILY, DURING AND AFTER ANY STORM EVENT AND MAKE REPAIRS OR CLEAN OUT UPSTREAM SEDIMENT AS NECESSARY.
- SEDIMENT ACCUMULATED UPSTREAM OF SEDIMENT CONTROL LOGS SHALL BE REMOVED WHEN THE UPSTREAM SEDIMENT DEPTH IS WITHIN HALF THE HEIGHT OF THE CREST OF LOG.
- SEDIMENT CONTROL LOGS SHALL BE REMOVED AT THE END OF CONSTRUCTION. IF ANY DISTURBED AREA EXISTS AFTER REMOVAL, IT SHALL BE DRILLED, SEEDED AND CRIMP MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE COUNTY.

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 D₅₀=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.



SEDIMENT TRAP
NTS

ST

NOTE:

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The Beach at Woodmoor Filing No. 1

Final Grading and Erosion Control Plan

El Paso County, Colorado

Kiowa
Engineering Corporation

1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 530-7342

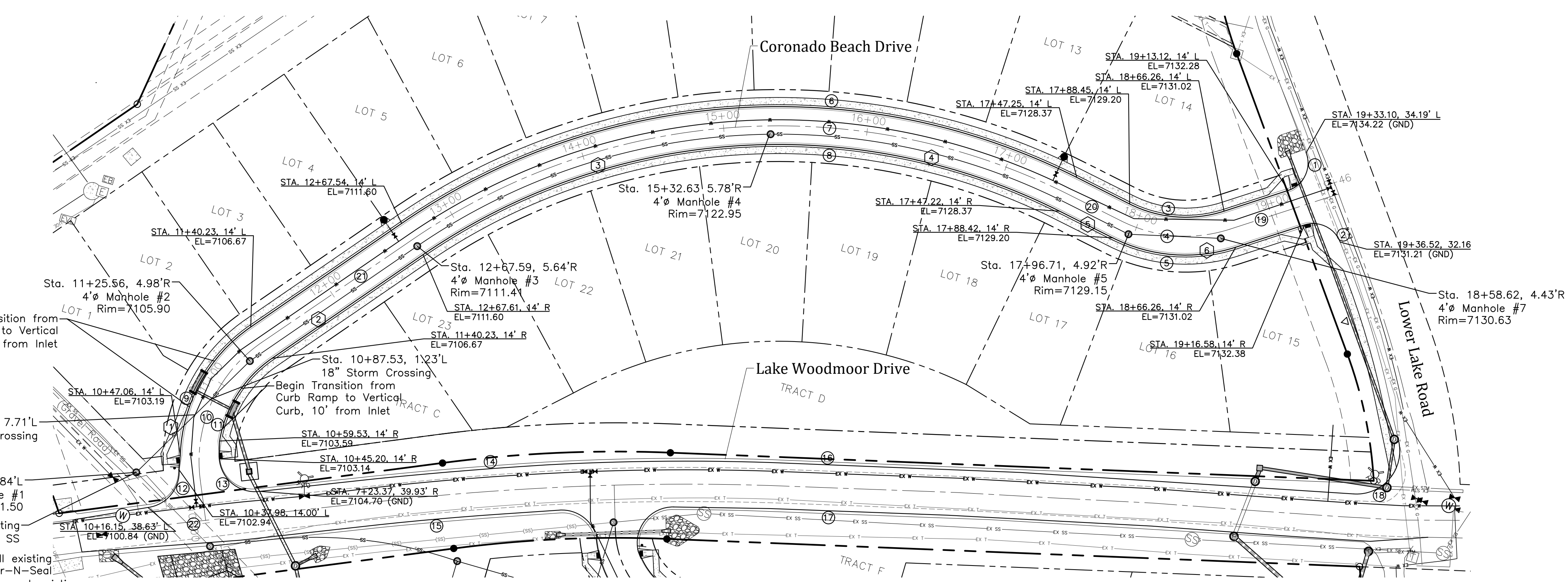
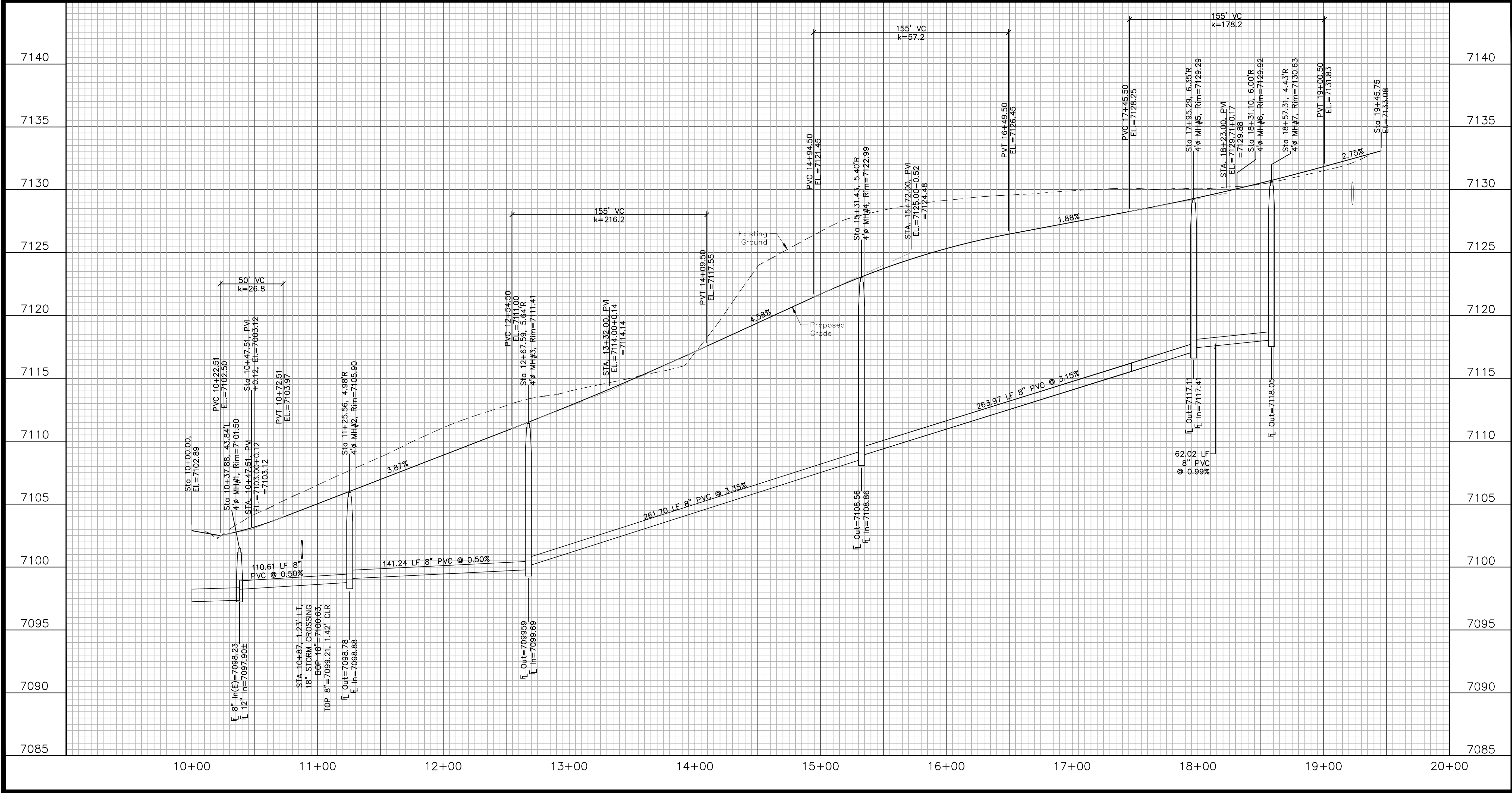
Project No.:	16059
Date:	January 16, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	

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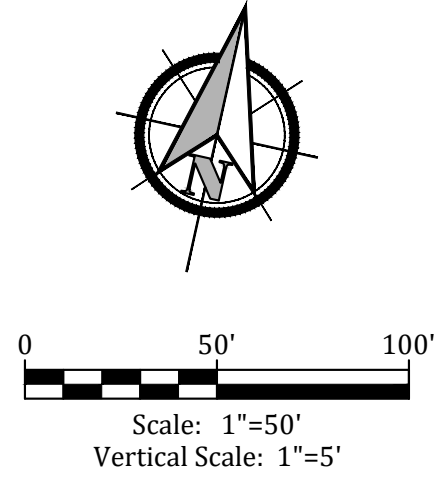
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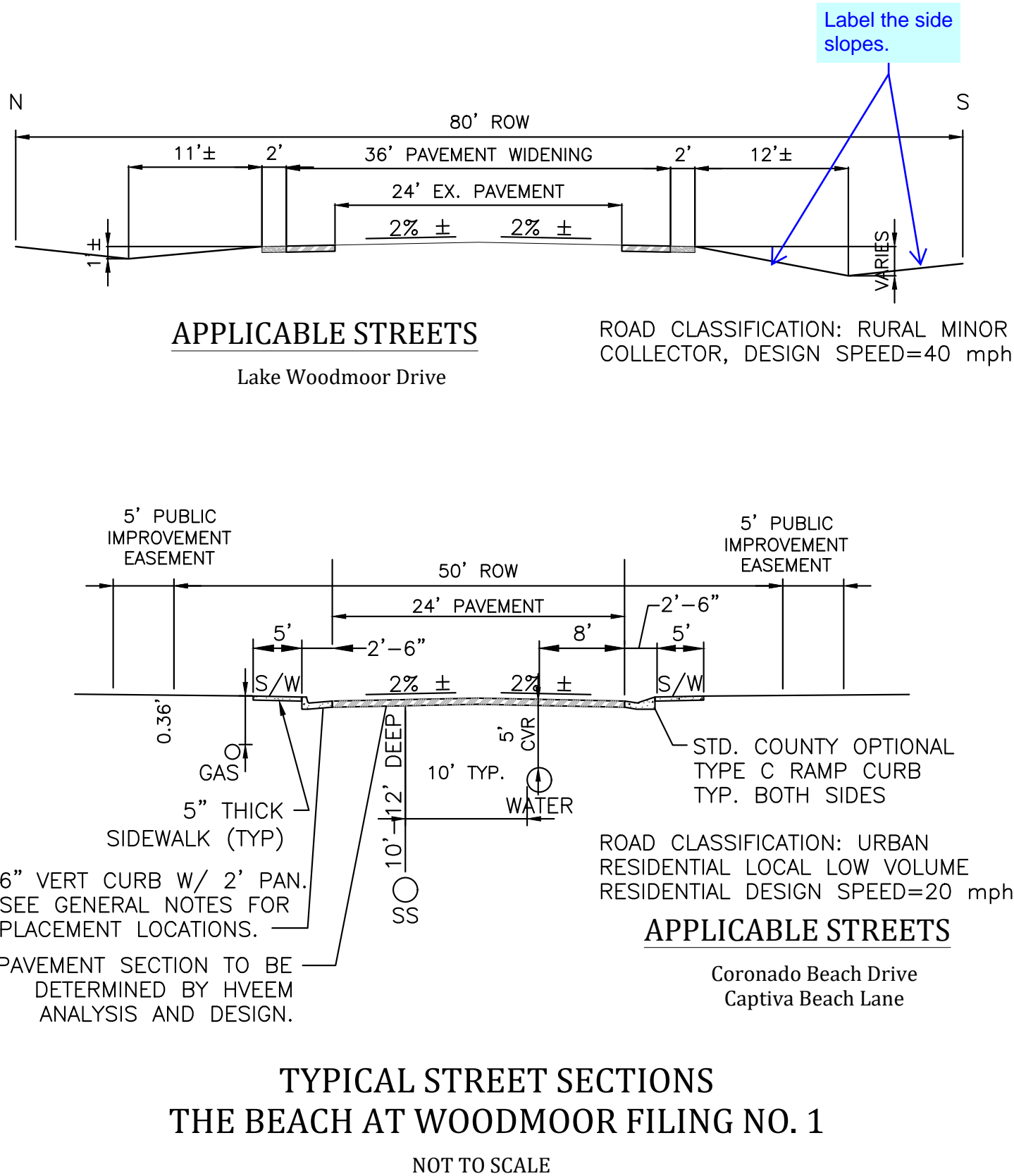
SANITARY SEWER LINE DATA	
Bearing	Distance
① N 29°19'36" E	110.61'
② N 39°17'32" E	141.24'
③ Δ=33°46'15", R=444, 261.70'-ARC	
④ Δ=27°19'58", R=444, 211.81'-ARC	
⑤ S 81°15'23" E	49.18'
⑥ N 64°59'37" E	28.91'

ROAD CURVE DATA (DELTA, RADIUS, ARC)	
① Δ=92°56'47" R=20.00' L=32.44'	⑩ Δ=63°15'15" R=100.00' L=110.40'
② Δ=87°03'08" R=20.00' L=30.39'	⑪ Δ=46°19'19" R=88.00' L=71.15'
③ Δ=44°35'14" R=88.00' L=68.48'	⑫ Δ=85°32'55" R=25.00' L=37.33'
④ Δ=44°35'14" R=100.00' L=77.82'	⑬ Δ=100°11'11" R=25.00' L=43.72'
⑤ Δ=44°35'14" R=112.00' L=87.16'	⑭ Δ=02°13'29" R=3087.86' L=119.90'
⑥ Δ=61°06'12" R=462.00' L=497.70'	⑮ Δ=02°13'12" R=3055.86' L=188.41'
⑦ Δ=61°06'12" R=450.00' L=479.31'	⑯ Δ=04°58'43" R=1809.31' L=157.21'
⑧ Δ=61°06'12" R=438.00' L=467.17'	⑰ Δ=04°58'19" R=1777.31' L=154.23'
⑨ Δ=53°27'34" R=112.00' L=104.50'	⑱ Δ=107°01'00" R=30.00' L=56.03'

ROAD LINE DATA	
⑰ N 59°48'31" W L=79.54'	⑲ N 39°17'32" E L=127.35'
⑳ S 79°36'16" E L=41.20'	㉑ N 23°57'43" W L=29.83'



SANITARY SEWER LINE DATA	
Bearing	Distance
① N 29°19'36" E	110.61'
② N 39°17'32" E	141.24'
③ Δ=33°46'15", R=444, 261.70'-ARC	
④ Δ=27°19'58", R=444, 211.81'-ARC	
⑤ S 81°15'23" E	49.18'
⑥ N 64°59'37" E	28.91'



WOODMOOR WATER & SANITATION DISTRICT NO. 1	
APPROVED FOR CONSTRUCTION	
Date: _____	By: _____
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The Beach at Woodmoor Filing No. 1

Coronado Beach Drive -- Plan and Profile

Sanitary Sewer -- Plan and Profile

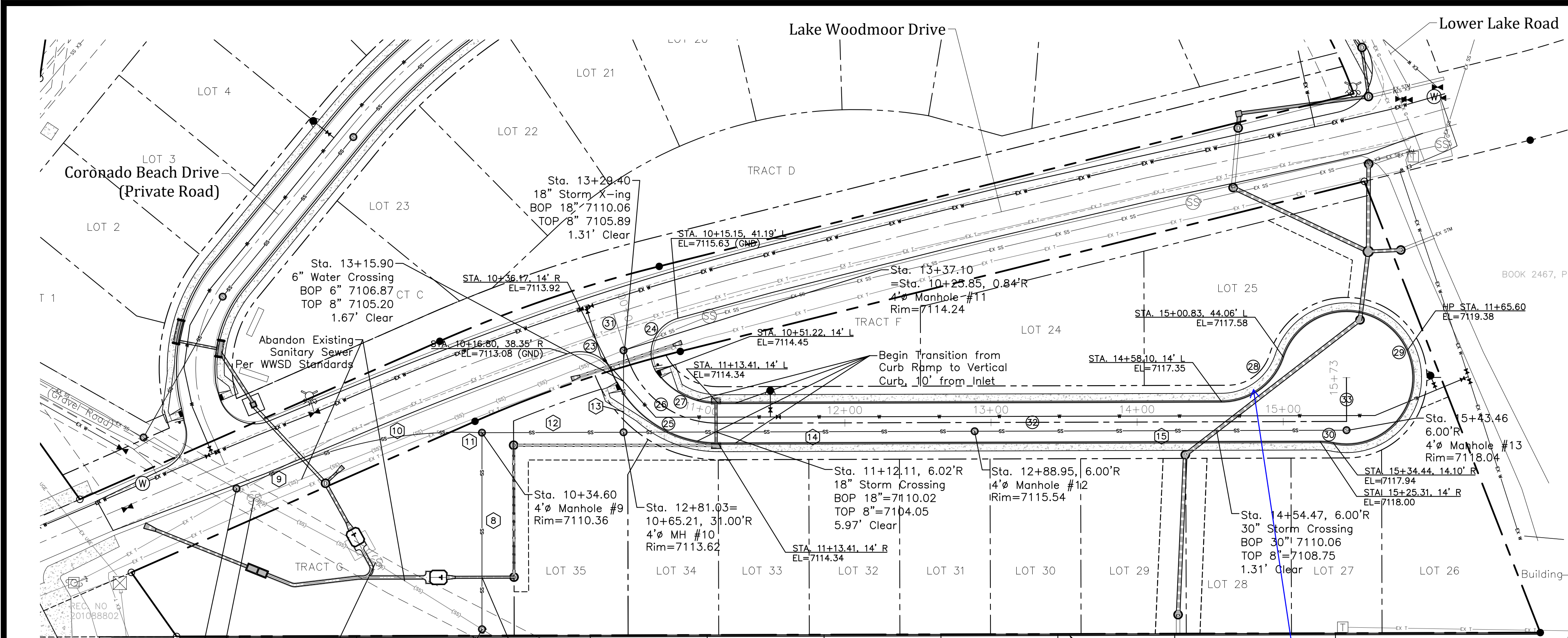
El Paso County, Colorado

Project No.:	16059
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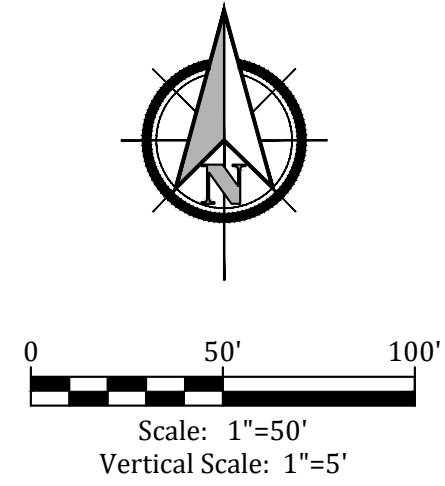
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Note 1 - Core drill existing manhole. Install Kor-N-Seal Boot. Remove / Regrout existing base throughs.

Note 2 - Field verify existing pipe size & elevation prior to construction.

SANITARY SEWER LINE DATA		
Bearing	Distance	
8 N 00°00'00" E	134.60'	
9 N 67°26'25" E	33.34'	
10 Δ=23°37'31", R=304.98', 125.76'-ARC		
11 S 88°16'56" E	7.82'	
12 N 89°49'48" E	96.52'	
13 N 00°00'00" E	56.07'	
14 N 89°50'04" E	240.32'	
15 N 89°50'15" E	254.51'	

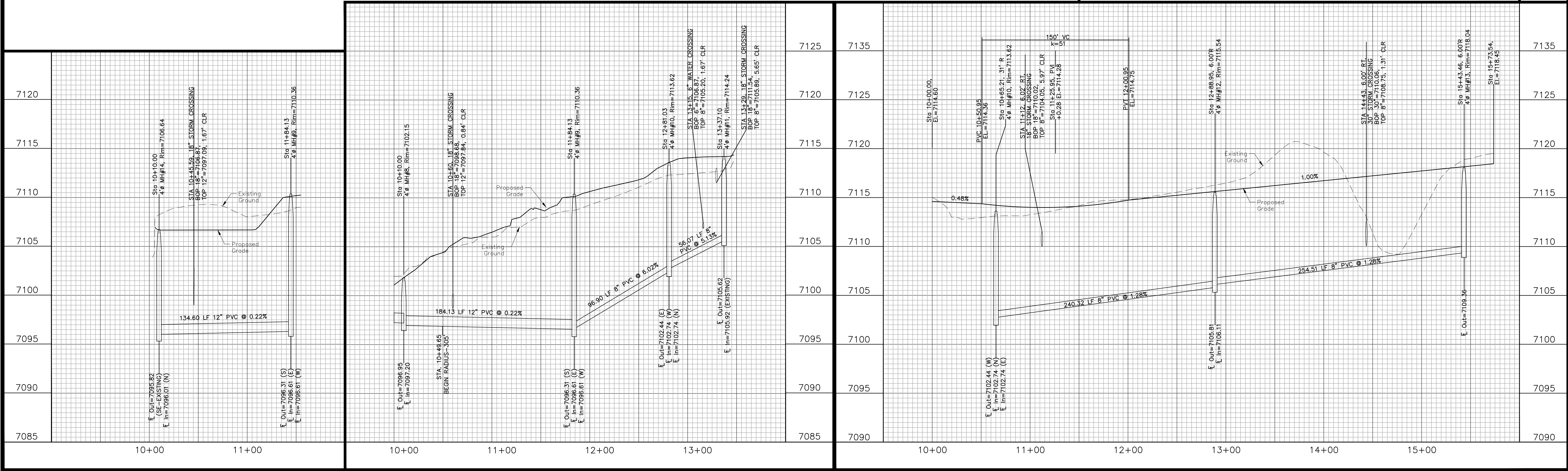
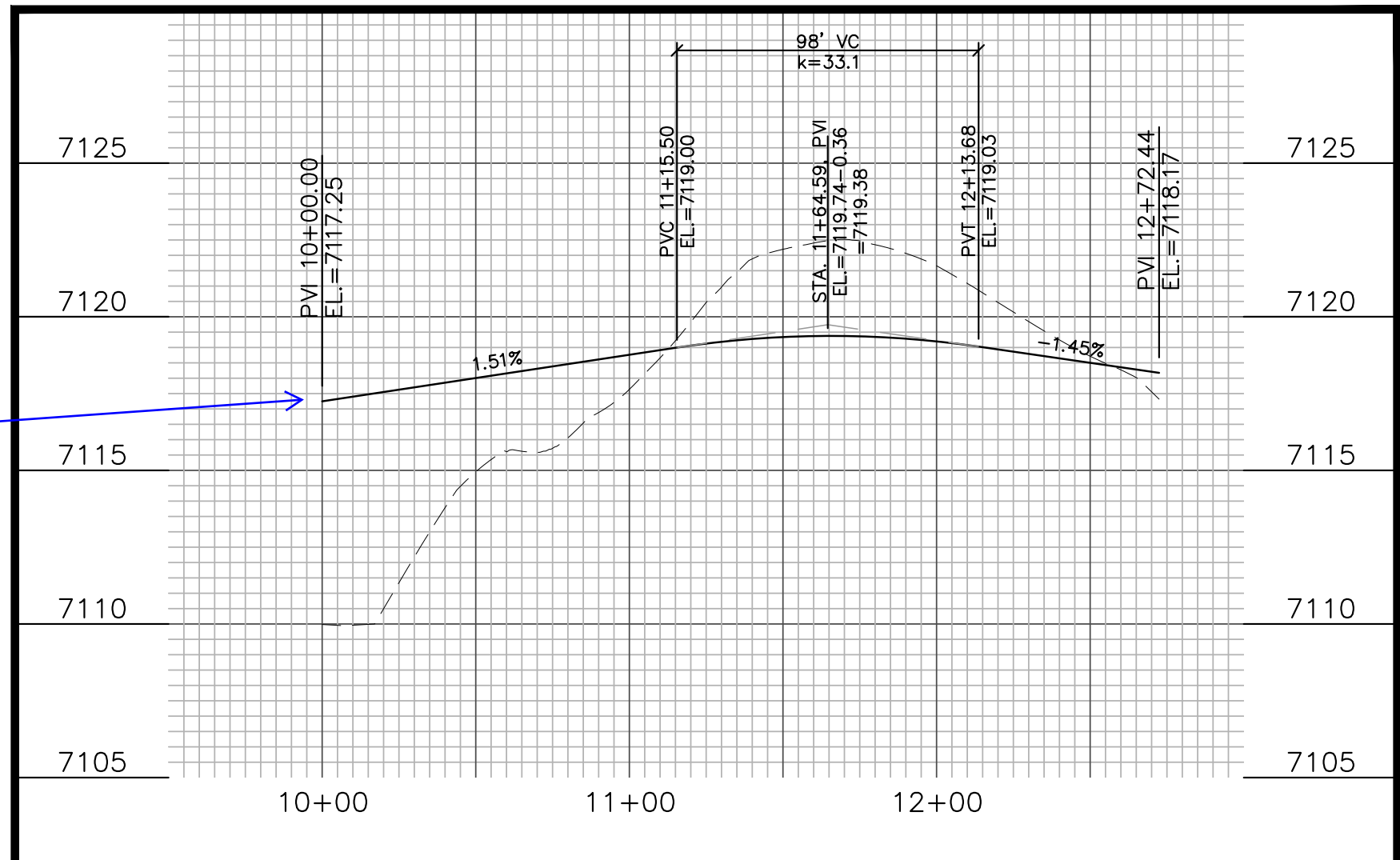


ROAD LINE DATA	
31 S 17°46'18" E L=29.48'	33 N 00°09'45" W L=30.00'
32 N 89°50'15" E L=430.13'	

ROAD CURVE DATA (DELTA,RADIUS,ARC)	
23 Δ=82°53'49" R=25.00' L=36.17'	27 Δ=54°51'02" R=51.83' L=49.62'
24 Δ=105°13'47" R=25.00' L=45.92'	28 Δ=71°44'14" R=45.00' L=56.34'
25 Δ=89°08'45" R=7.88' L=92.63'	29 Δ=263°26'20" R=45.00' L=206.90'
26 Δ=73°41'36" R=65.01' L=83.62'	30 Δ=11°42'07" R=45.00' L=9.19'

Reference the approved deviation request to the minimum centerline radius (DEV-18-001)

Captiva Beach Lane Cul-de-sac Profile



The Beach at Woodmoor Filing No. 1

Captiva Beach Lane -- Plan and Profile
Sanitary Sewer -- Plan and Profile
El Paso County, Colorado

Project No.:	16059
Date:	January 16, 2018
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The Beach at Woodmoor Filing No. 1
EL PASO COUNTY, COLORADO
PUBLIC WATER SYSTEM PLAN AND PROFILES
INCLUDING UTILITY SERVICES
January 16, 2018

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



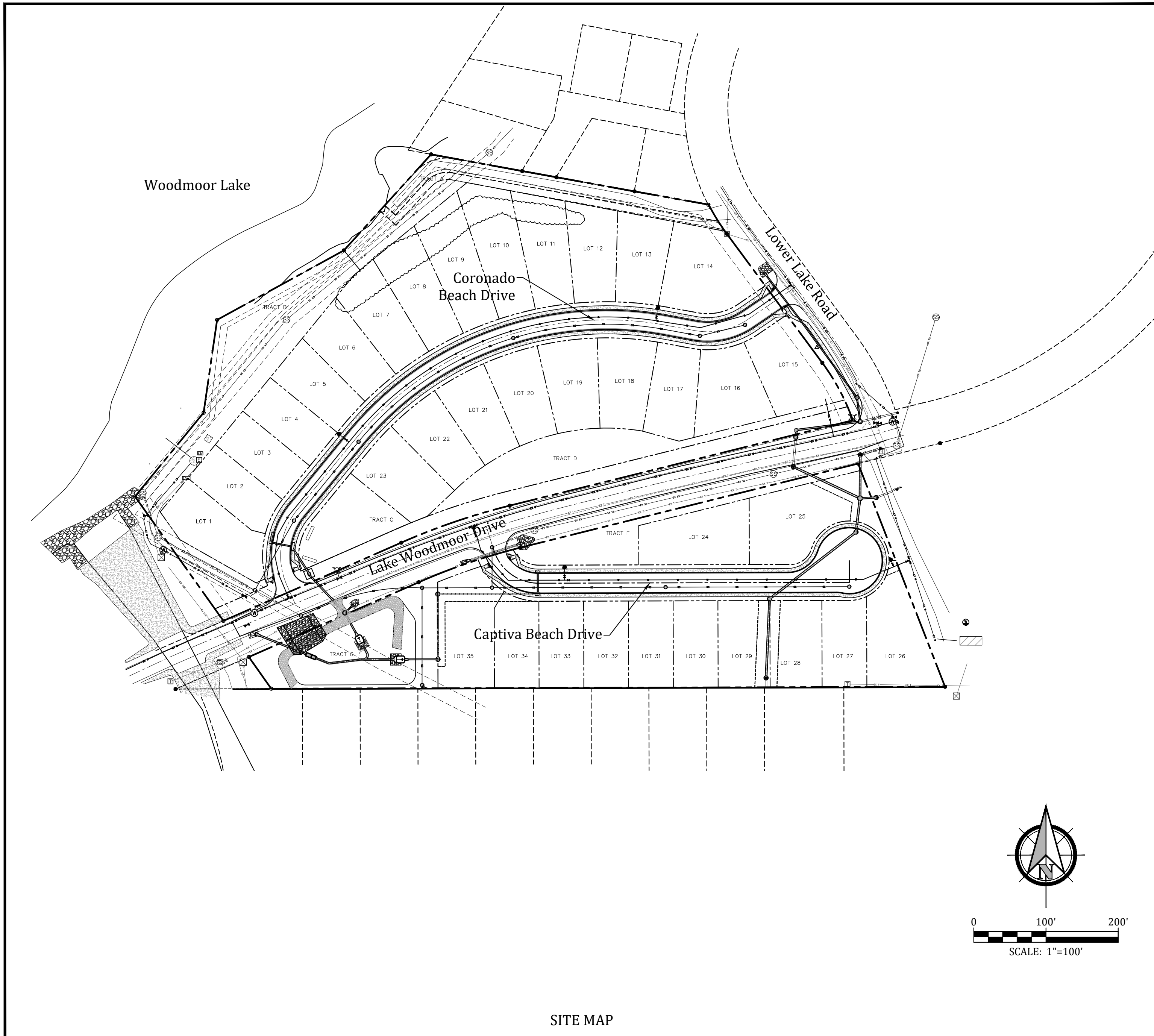
Know what's below.
Call before you dig.

PRE-EXCAVATION CHECKLIST

- ☐ Gas and other utility lines of record shown on the plans.
- ☐ Utilities Central Locating called at least 2 business days ahead. (1-800-922-1987)
- ☐ 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
Electric	Red
Water	Blue
Wastewater	Green



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 System Plan
10	Utility Services Plan
11	Water Plan and Profile - Coronado Beach Drive
12	Water Plan and Profile - Captiva Beach Lane

WOODMOOR WATER & SANITATION DISTRICT NO. 1
APPROVED FOR CONSTRUCTION

Date: _____ By: _____

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The Beach at Woodmoor Filing No. 1

Utility Plan Cover Sheet
El Paso County, Colorado

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

Project No.:	16059
Date:	January 16, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	

Sheet

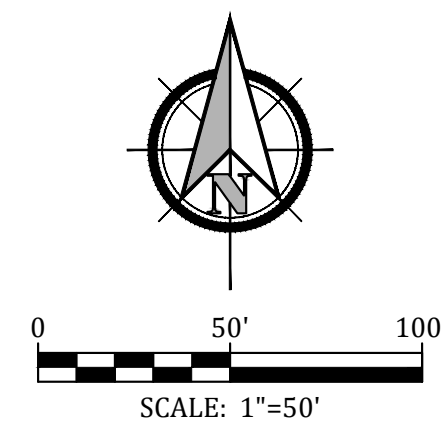
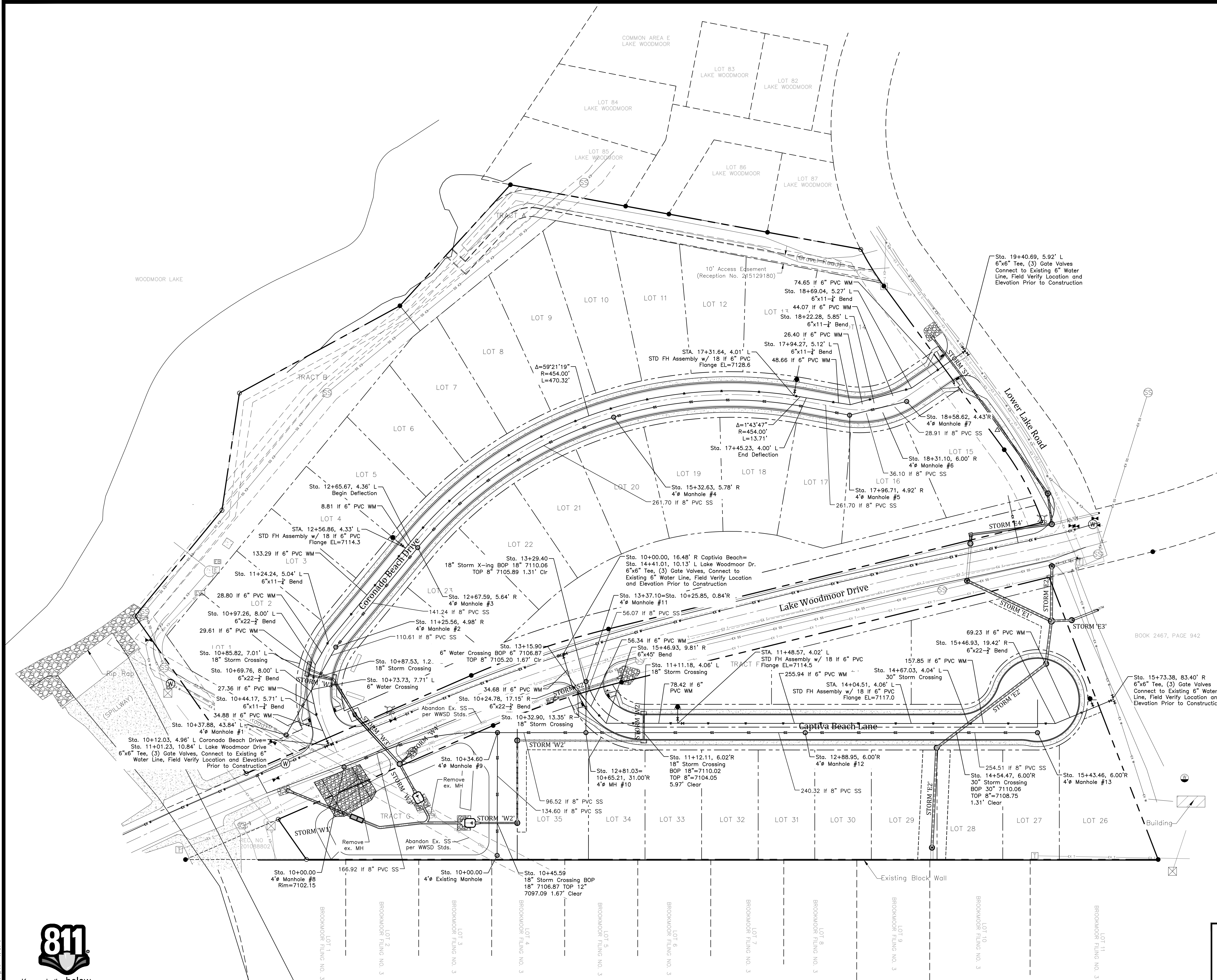
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16059-9-10-UT.dwg/Jan. 16, 2018



Know what's below.
Call before you dig.



PRE-EXCAVATION CHECKLIST

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- ☐ 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
Electric	Red
Water	Blue
Wastewater	Green

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The Beach at Woodmoor Filing No. 1

Utility System Plan
El Paso County, Colorado

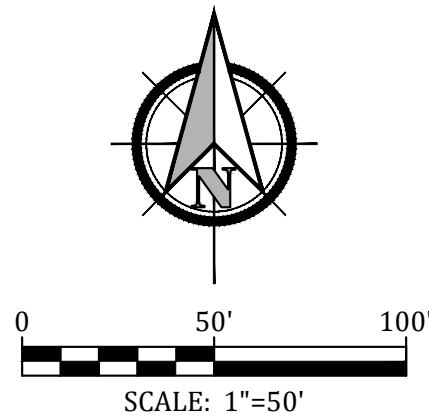
Kiowa
Engineering Corporation
1604 South 21st Street
Colorado Springs, Colorado 80904
(719) 630-7342

Project No.:	16059
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Revisions:	

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Notes:

1. Install water and wastewater service per Details G-5, G-6, G-7, and G-8 of the *Woodmoor Water and Sanitation District No. 1 Systems Specifications*.
2. Provide metal T-post at curb stop when construction of the water service stubout is completed.
3. Provide metal T-post at cleanout when construction of the wastewater service stubout is completed.

PRE-EXCAVATION CHECKLIST

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WOODMOOR WATER & SANITATION DISTRICT NO. 1
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The Beach at Woodmoor No. 1
Utility Services Plan
El Paso County, Colorado

Project No.:	16059
Date:	January 16, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	

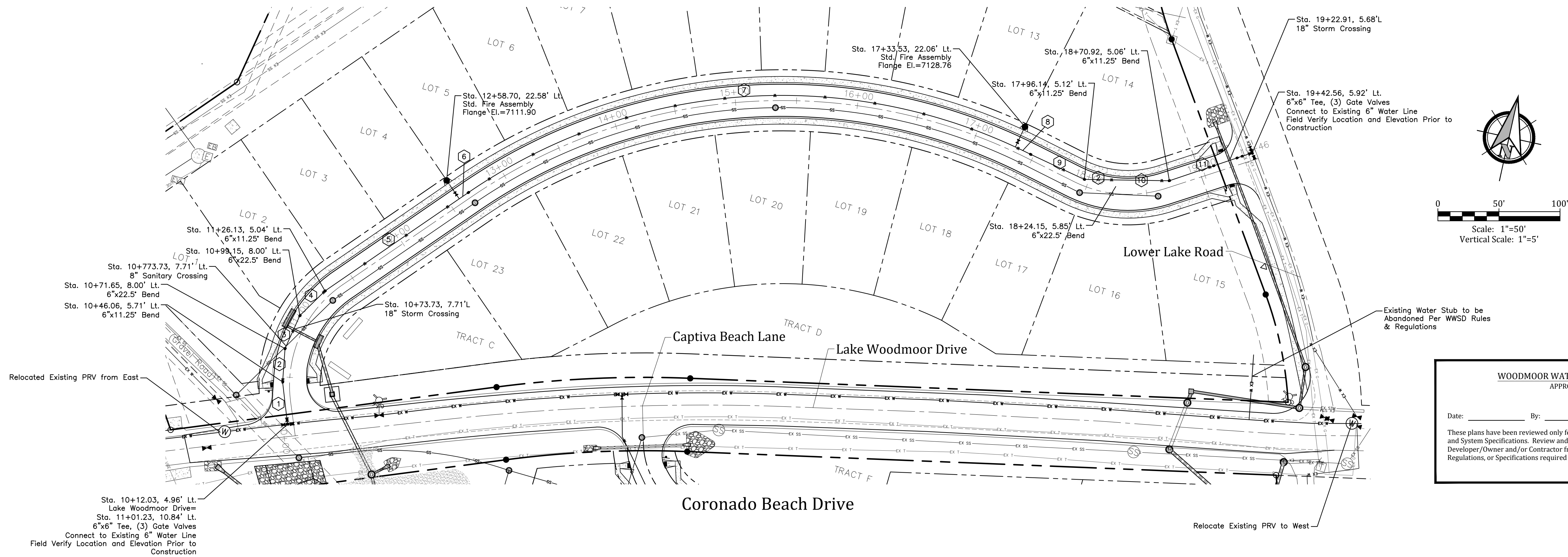
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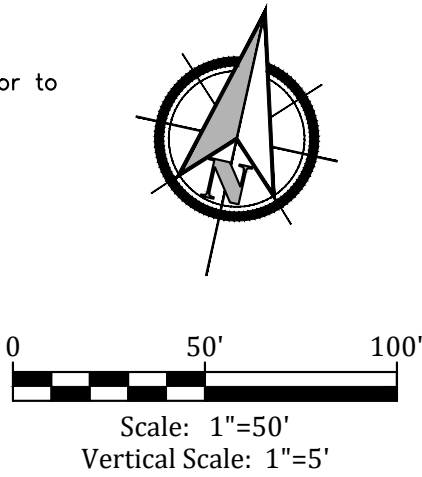
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Call before you dig.



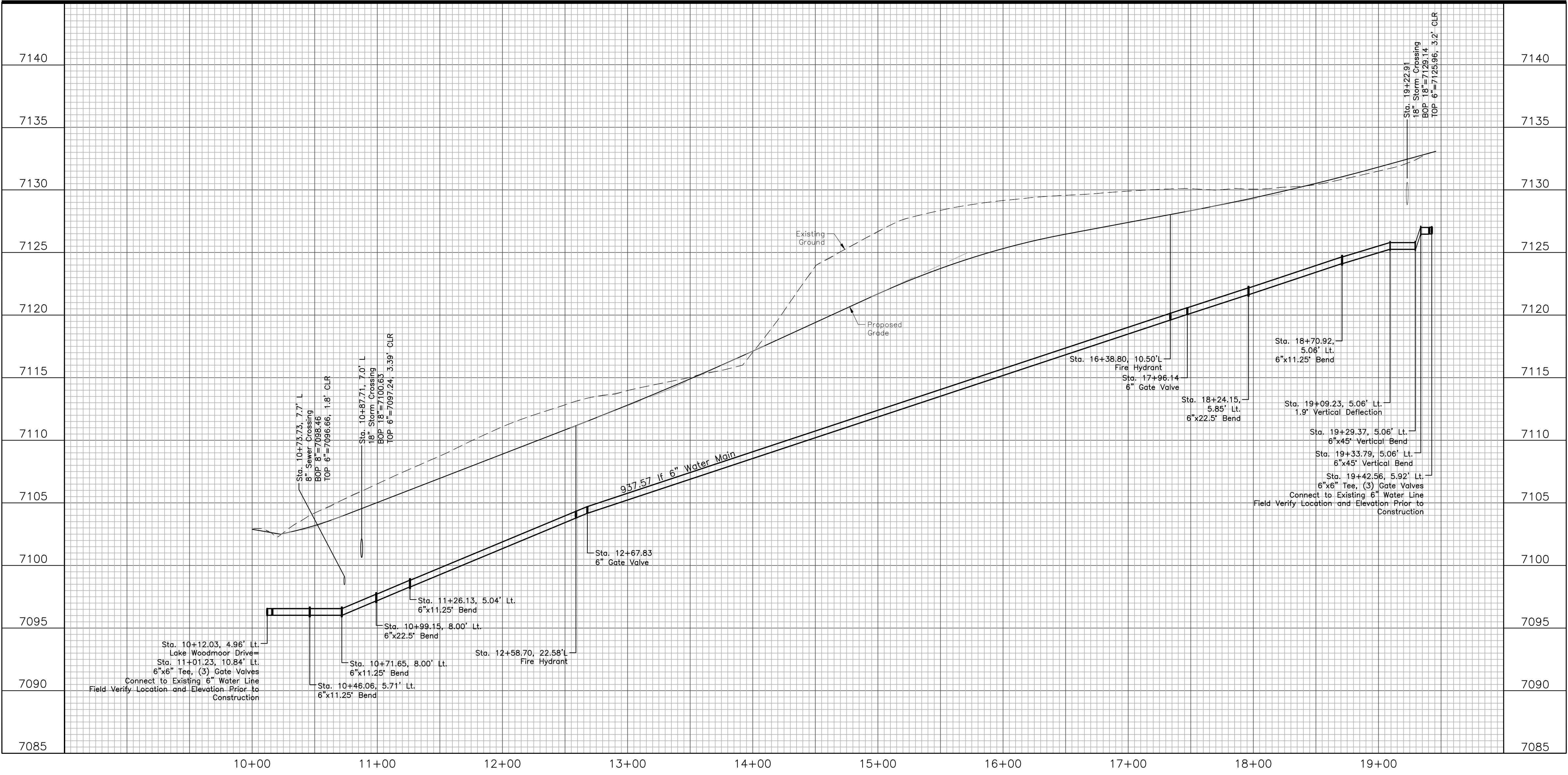
WATER LINE DATA	
Bearing	Distance
1 N 06°38'34\"	34.88'
2 N 02°14'29\"	27.36'
3 N 24°8'18\"	29.61'
4 N 45°35'12\"	28.80'
5 N 55°33'08\"	133.29'
6 N 55°33'08\"	8.81'
7 Δ=60°05'06\", R=454.00', 484.03\"	ARC
8 S 64°59'47\"	48.66'
9 S 77°21'28\"	26.40'
10 N 83°52'44\"	44.07'
11 N 71°22'41\"	71.65'



WOODMOOR WATER & SANITATION DISTRICT NO. 1
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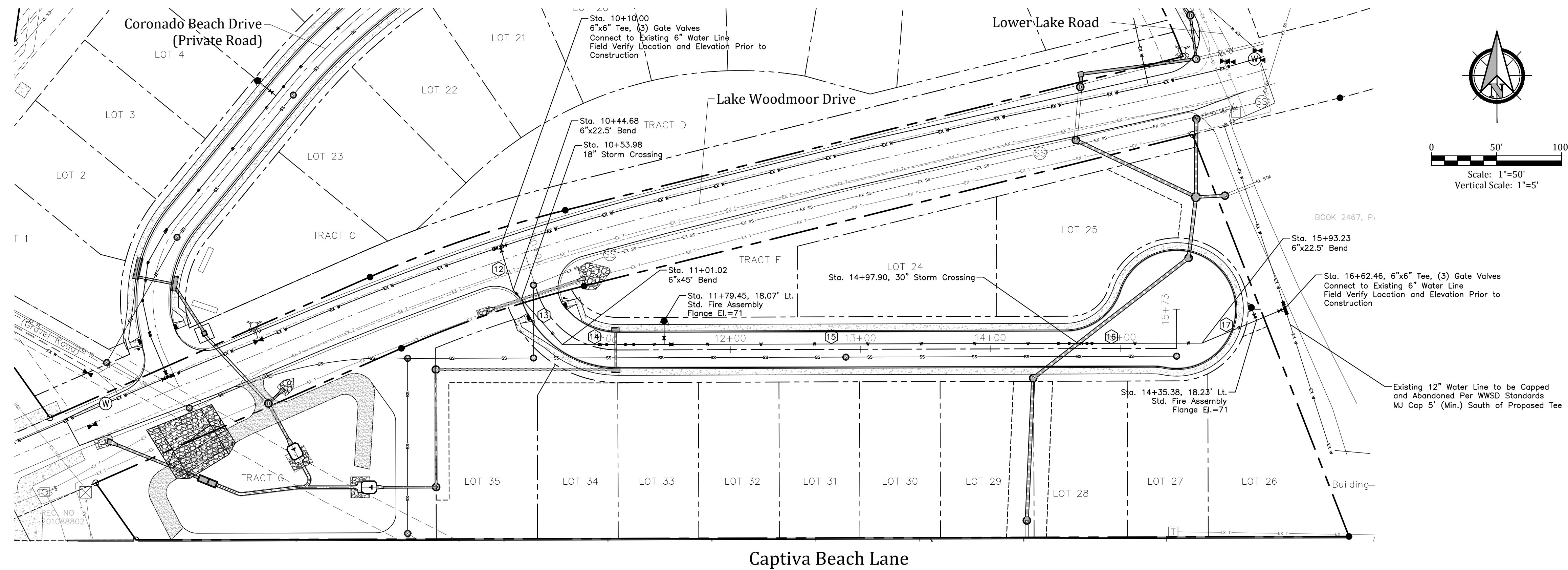
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Coronado Beach Drive -- Plan and Profile
Water -- Plan and Profile
El Paso County, Colorado

Project No.: 16059
Date: January 16, 2018
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Drawn: JAK
Check: AWMc
Revisions:

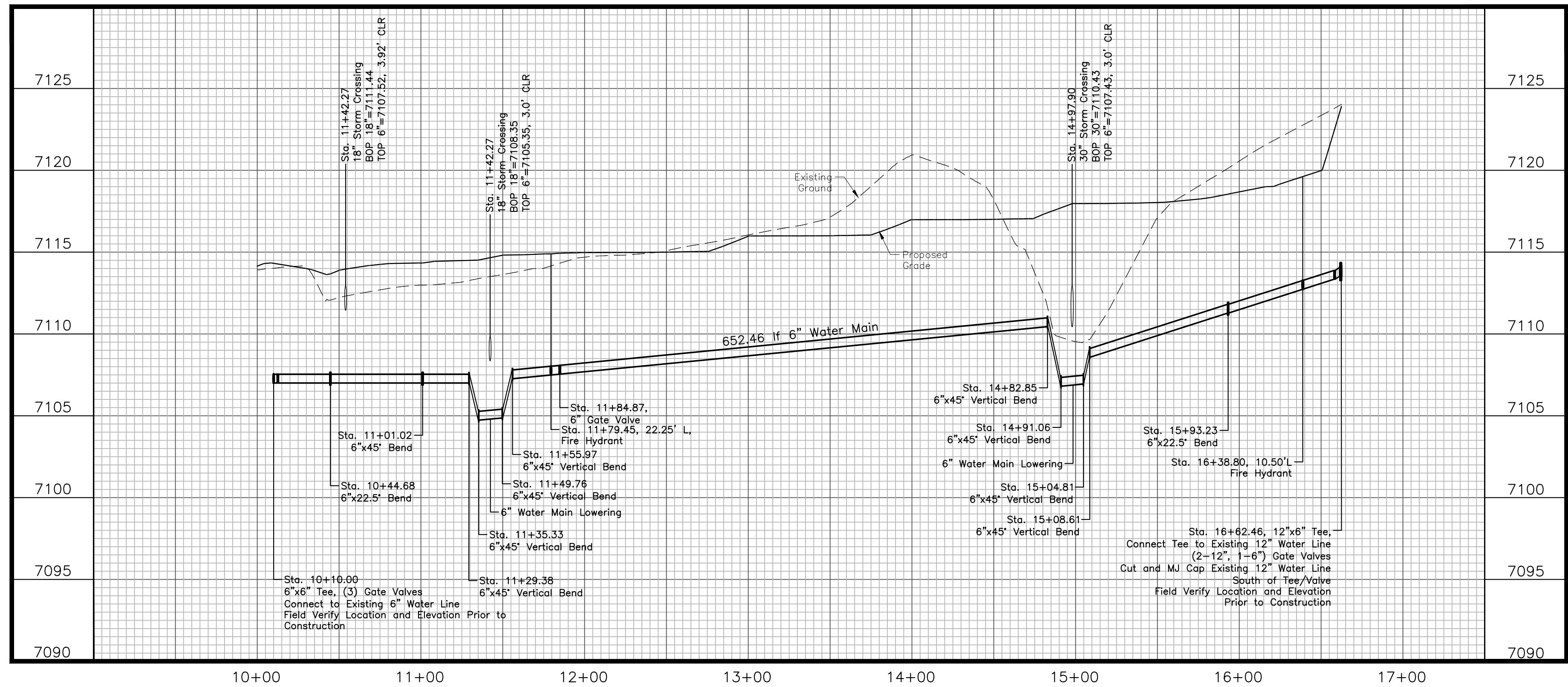
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WATER LINE DATA		
	Bearing	Distance
12	S 16°40'25" E	34.68'
13	S 41°57'21" E	56.34'
14	N 89°51'49" E	78.42'
15	N 89°51'49" E	255.94'
16	N 89°51'49" E	157.85'
17	N 67°22'35" E	69.23'



WOODMOOR WATER & SANITATION DISTRICT NO. 1
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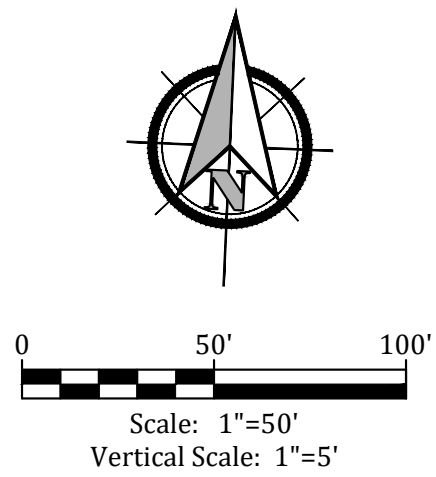
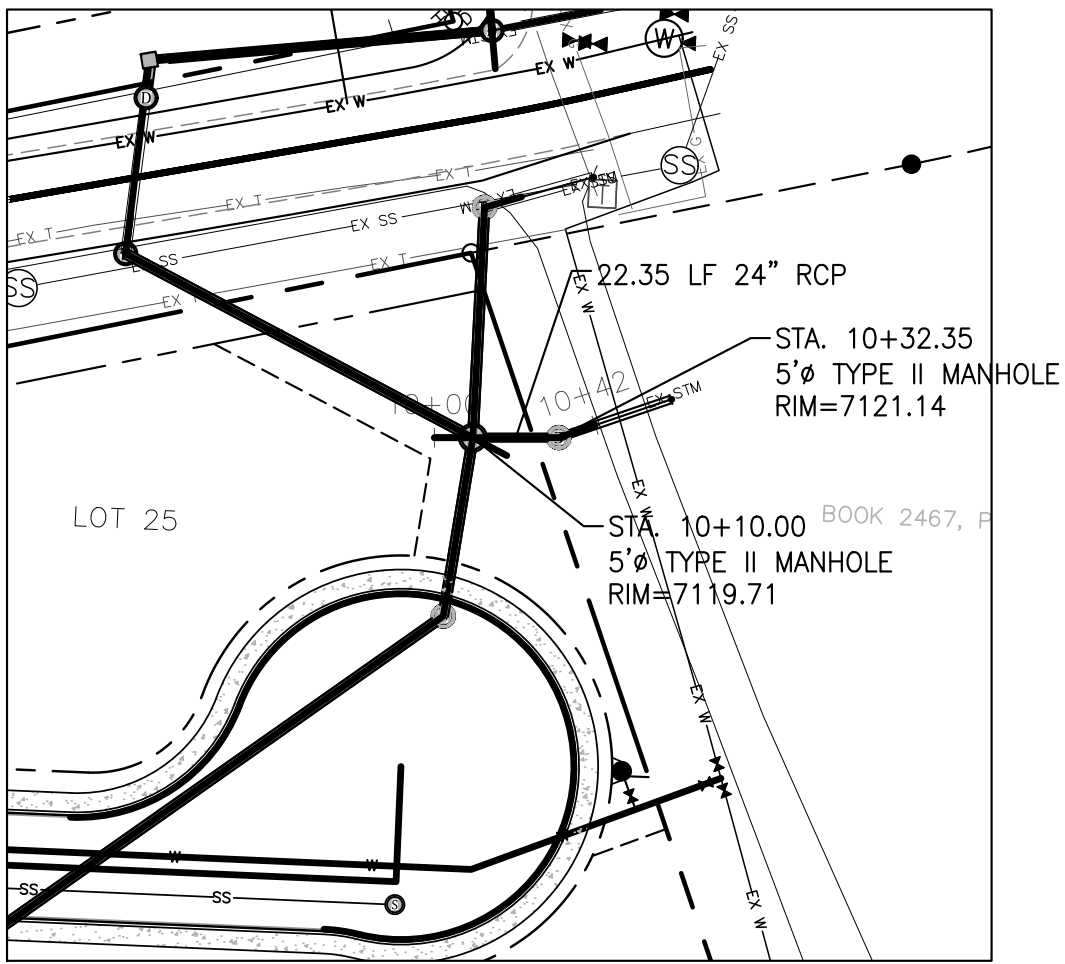
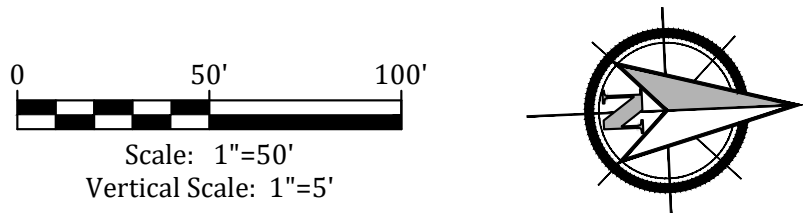
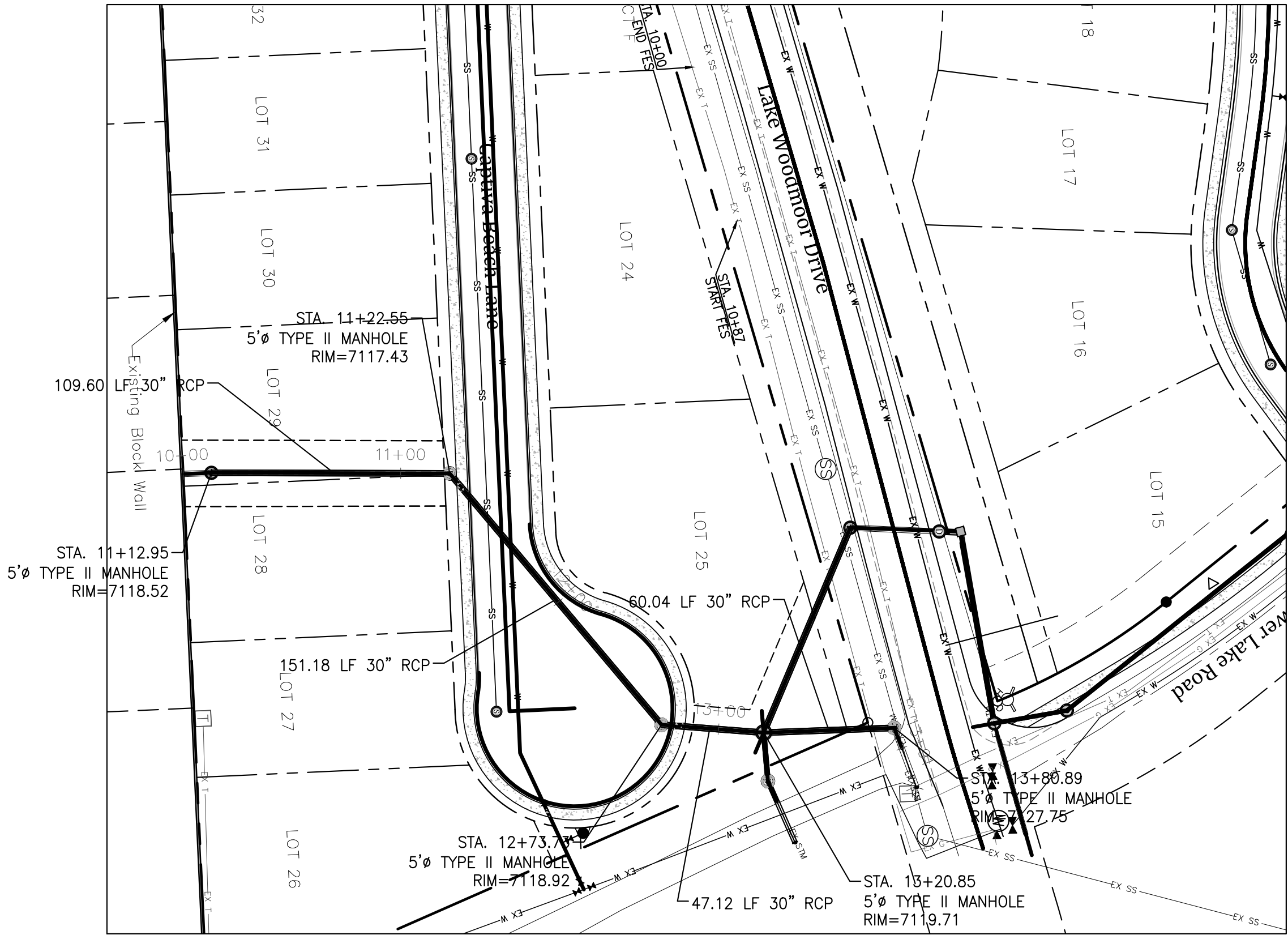
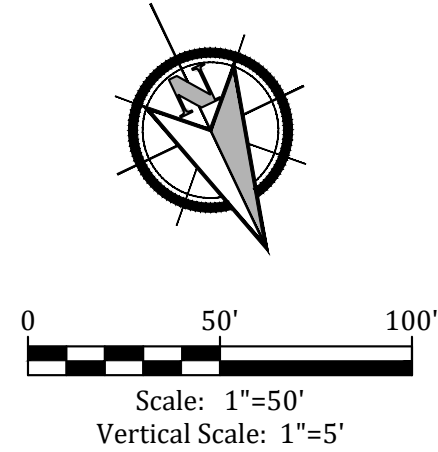
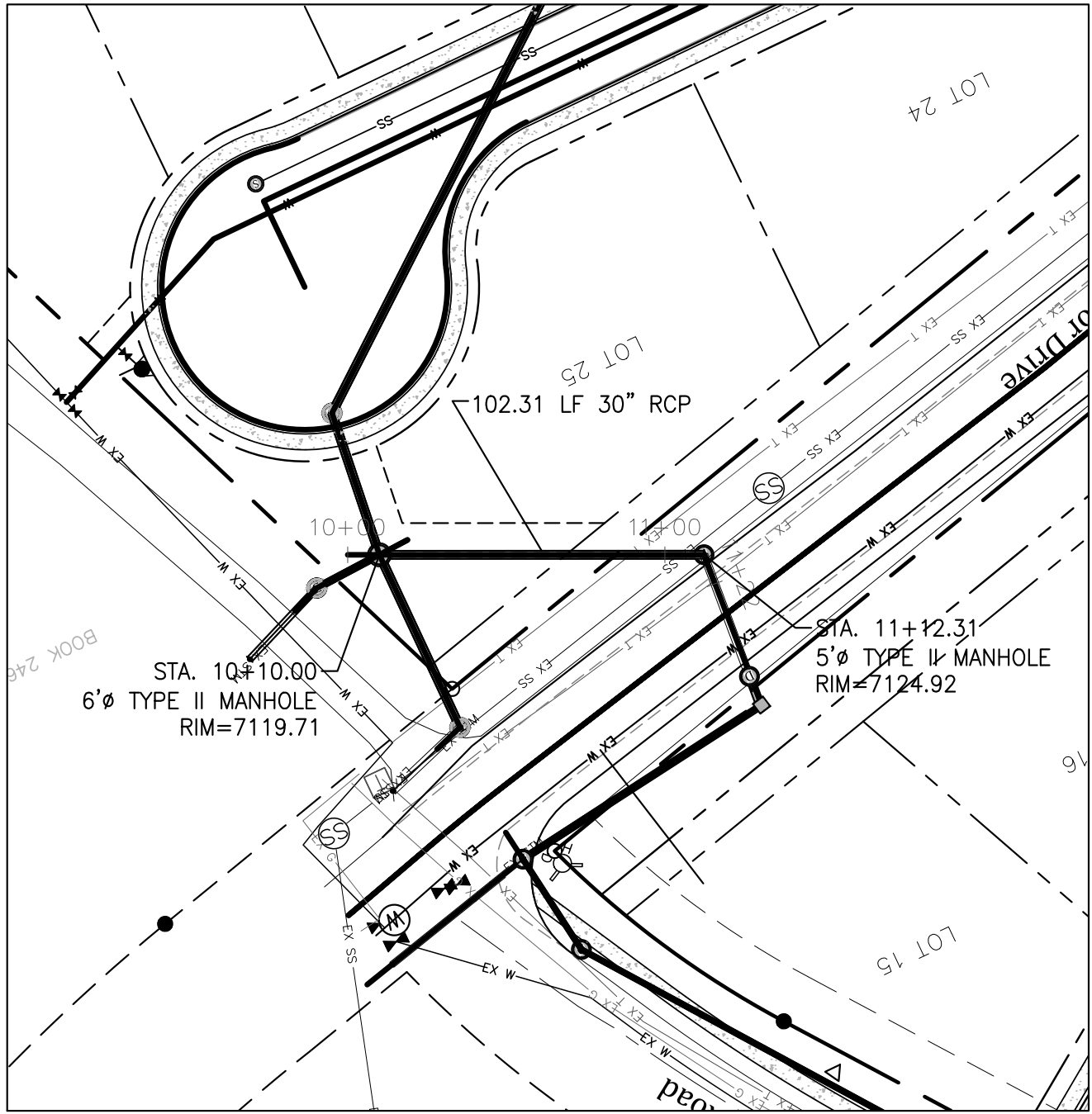
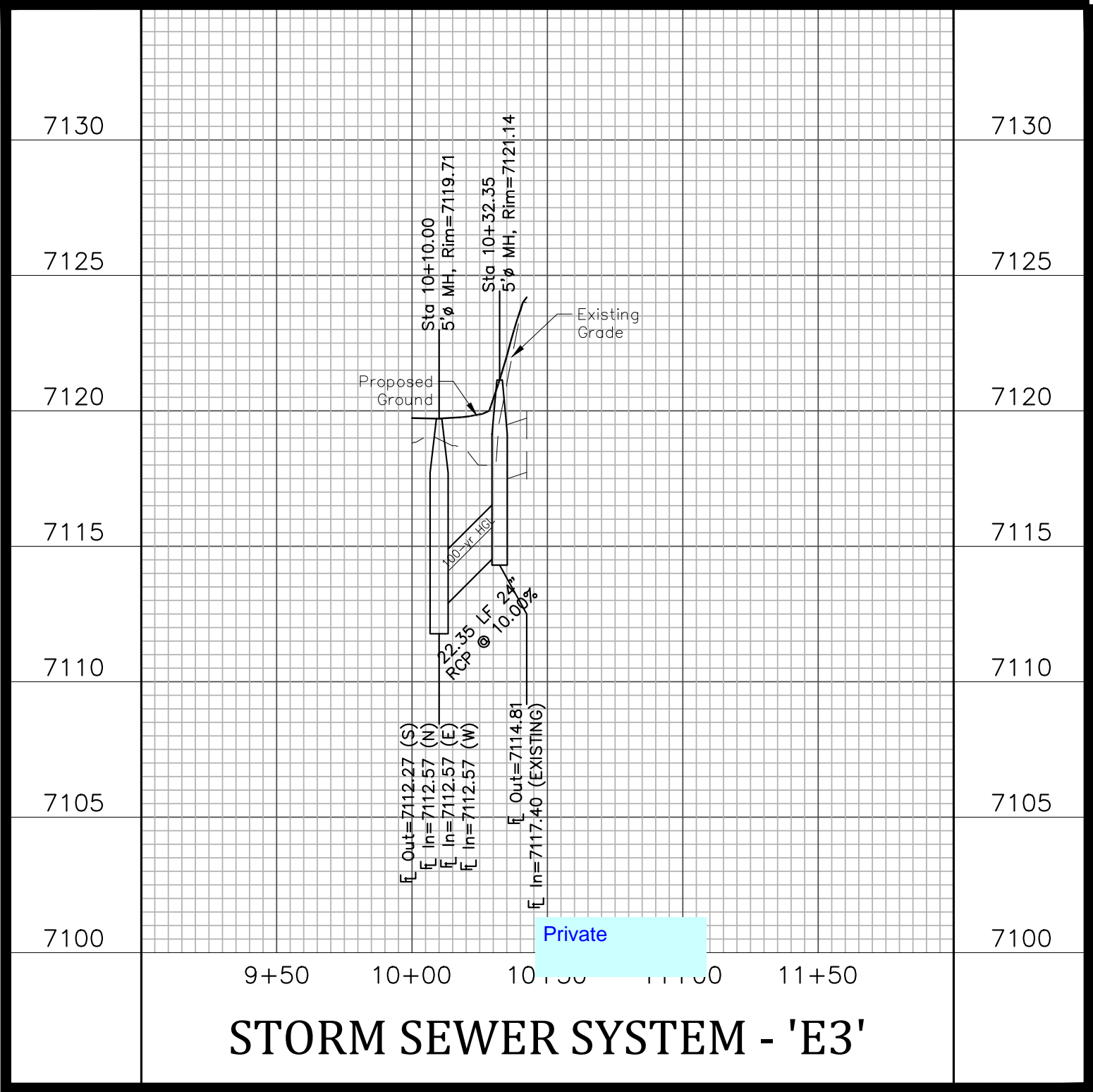
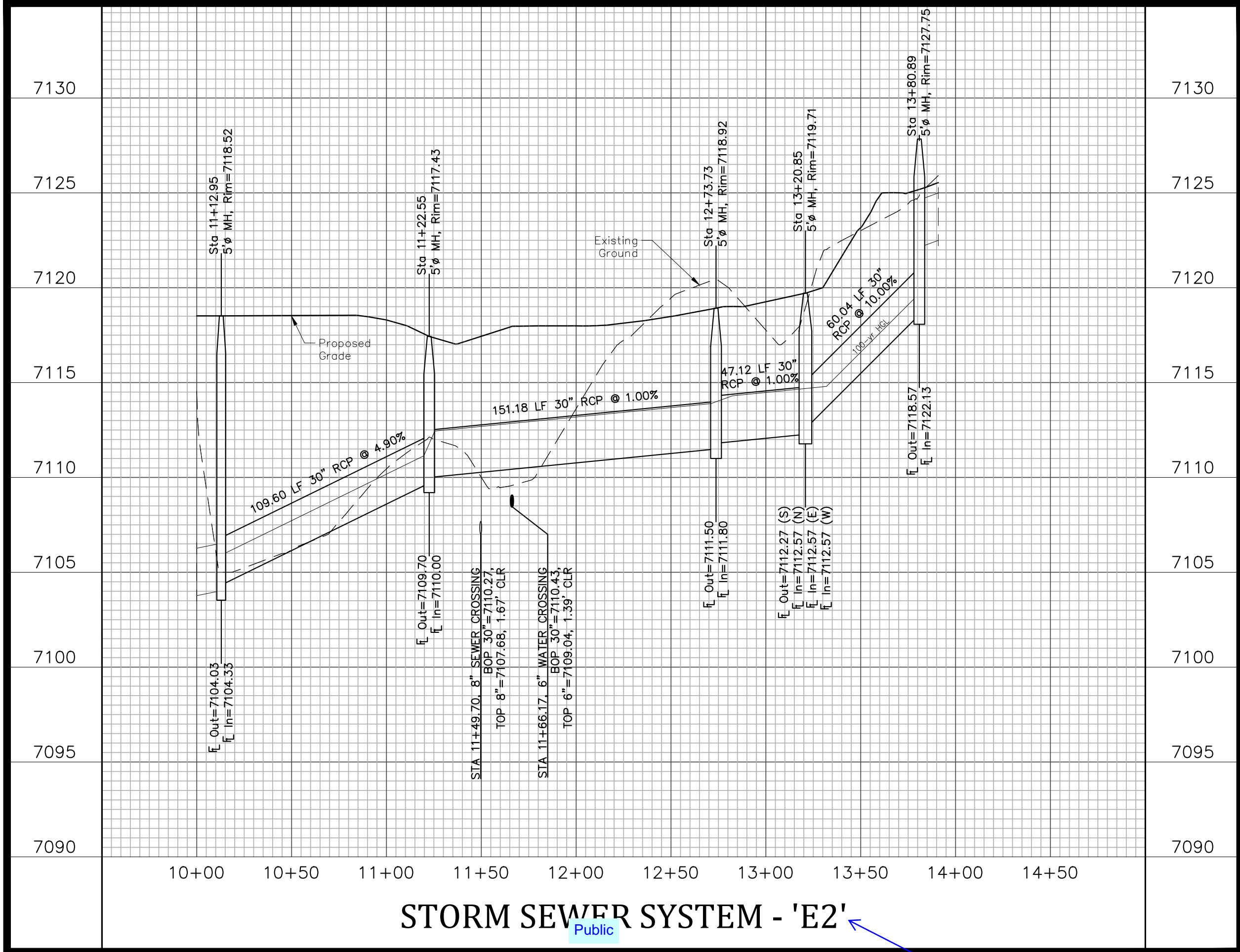
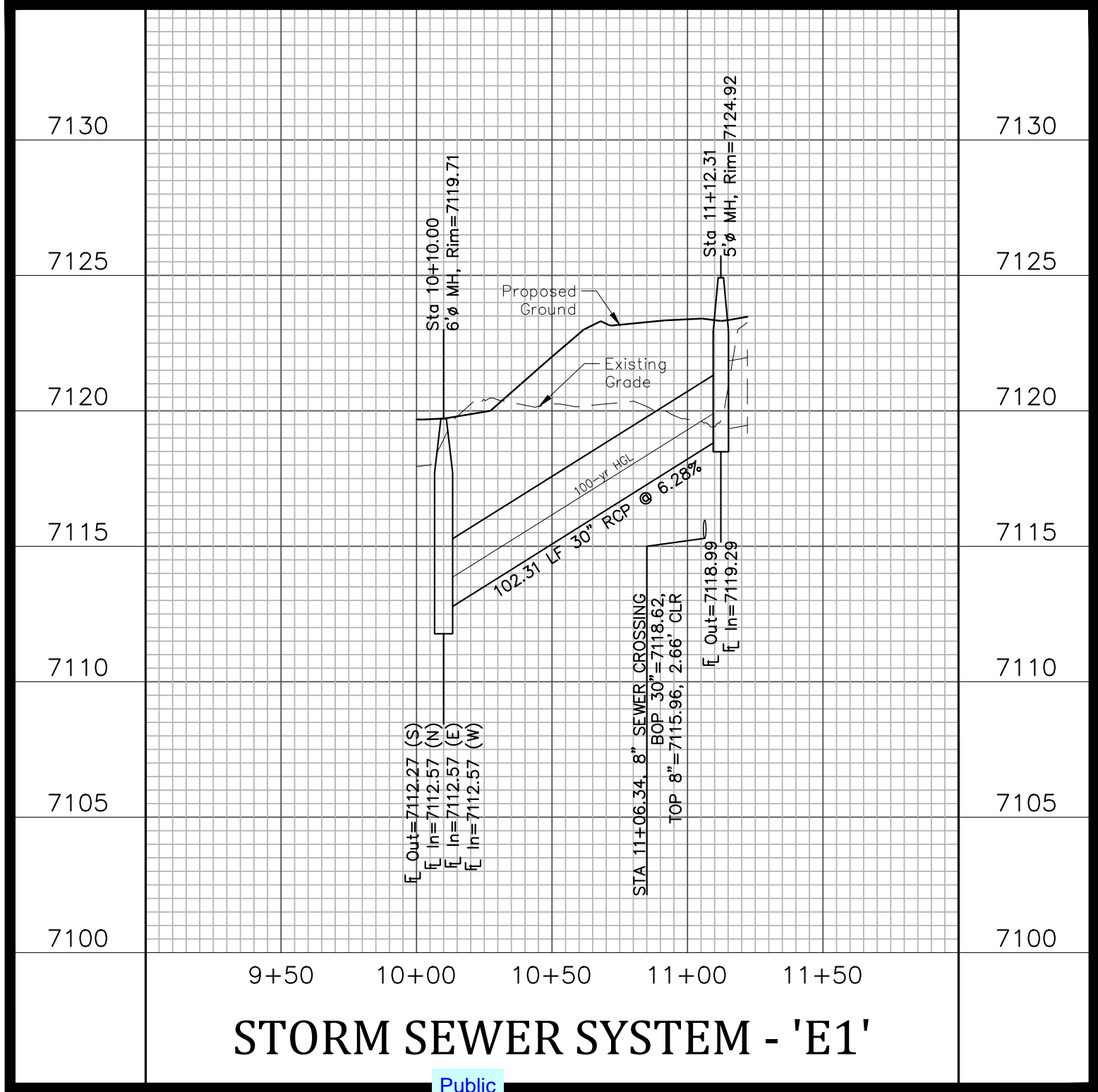
The Beach at Woodmoor Filing No. 1
Captiva Beach Lane -- Plan and Profile
Water -- Plan and Profile
El Paso County, Colorado

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Date:	January 16, 2018
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Label all storm drain and culverts as either private or public. (typ for all profiles)
Unresolved

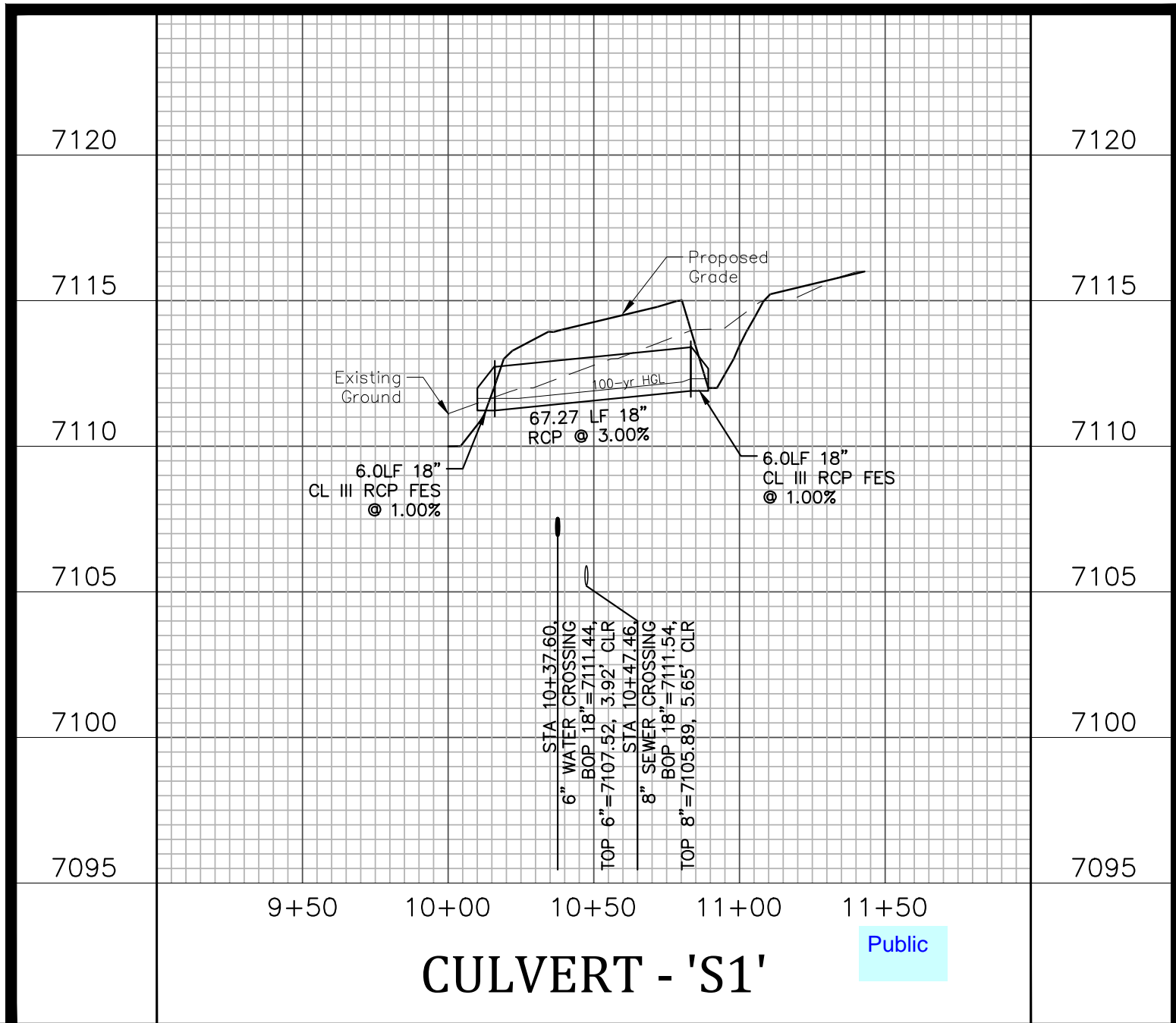
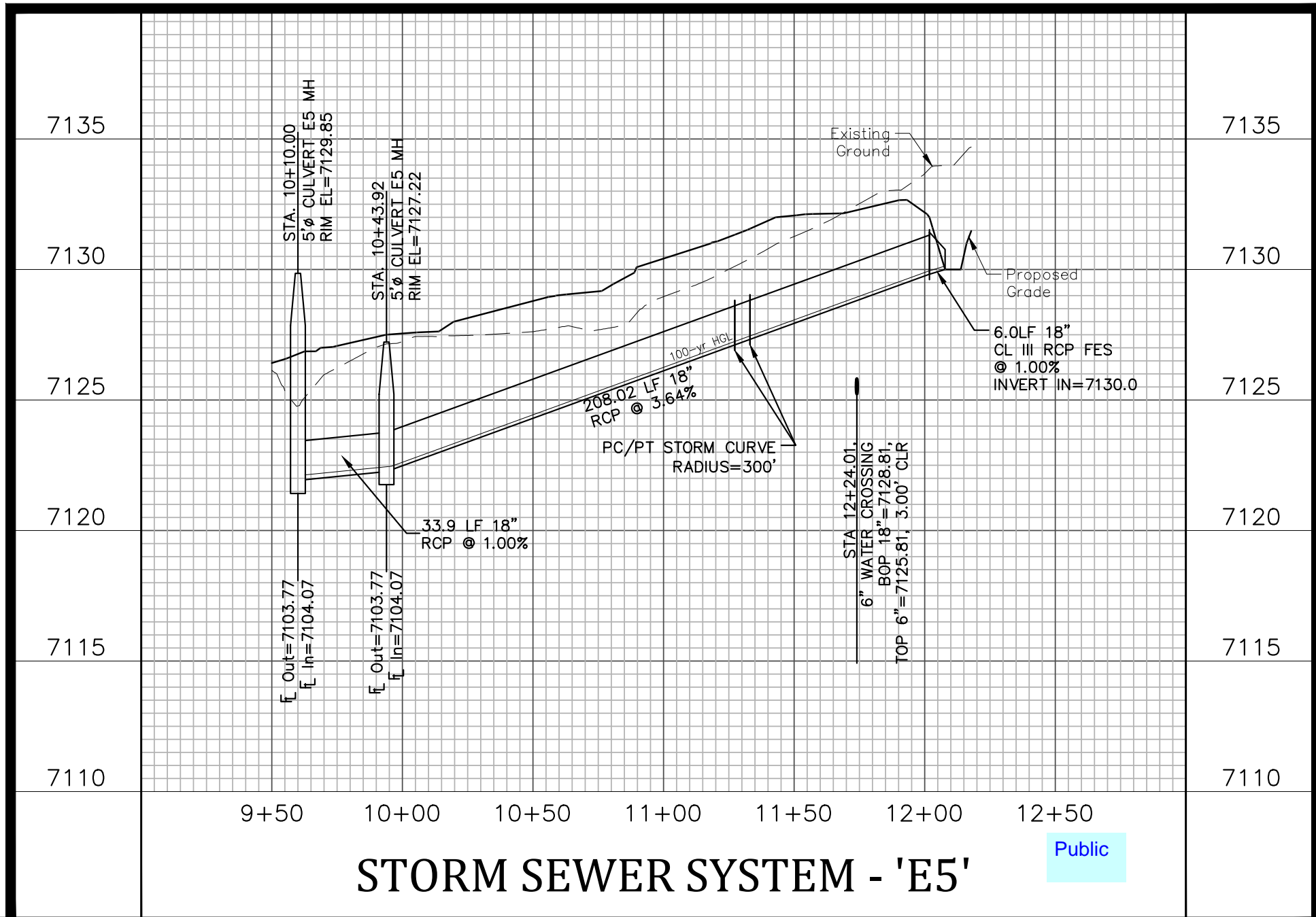
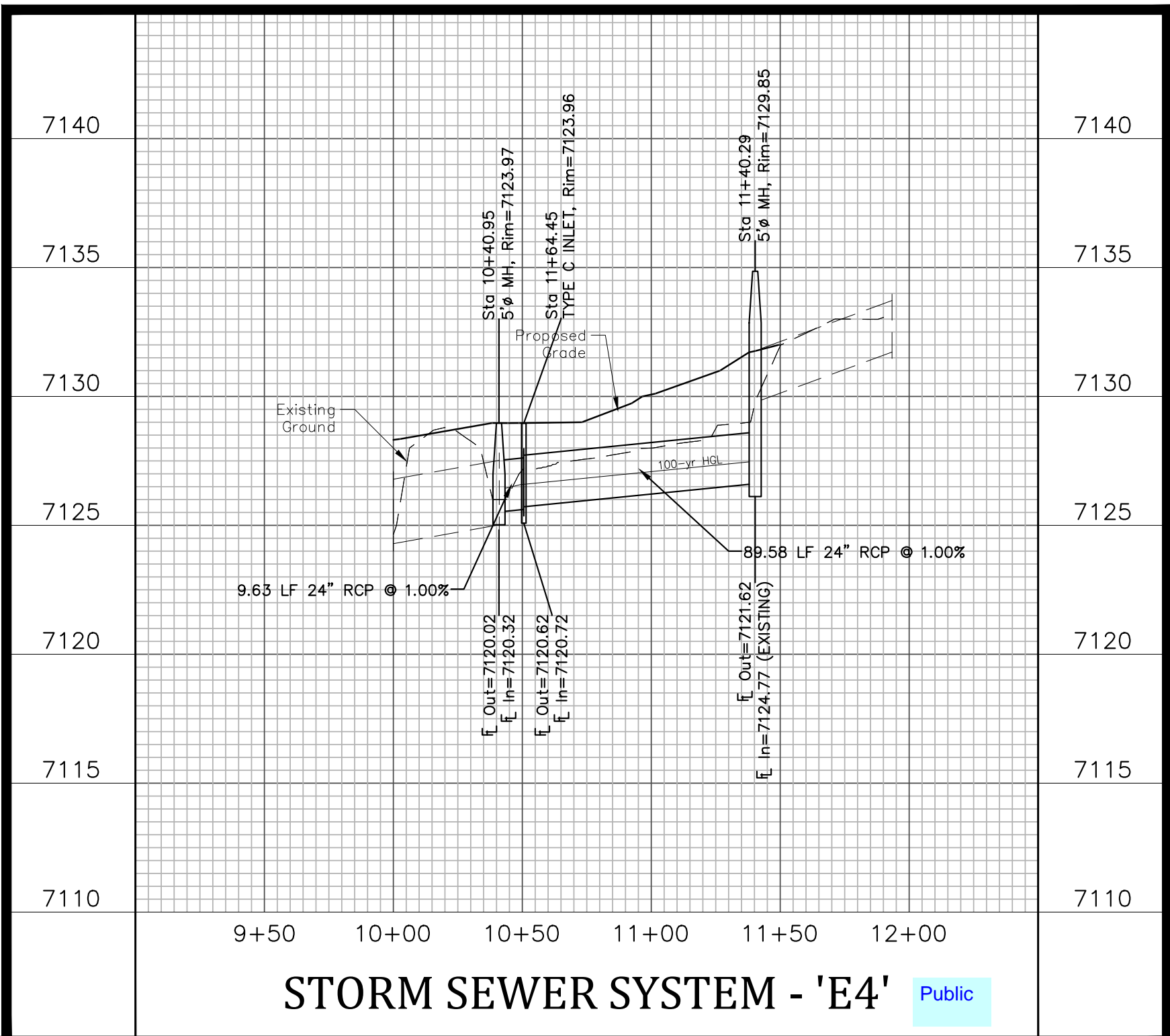
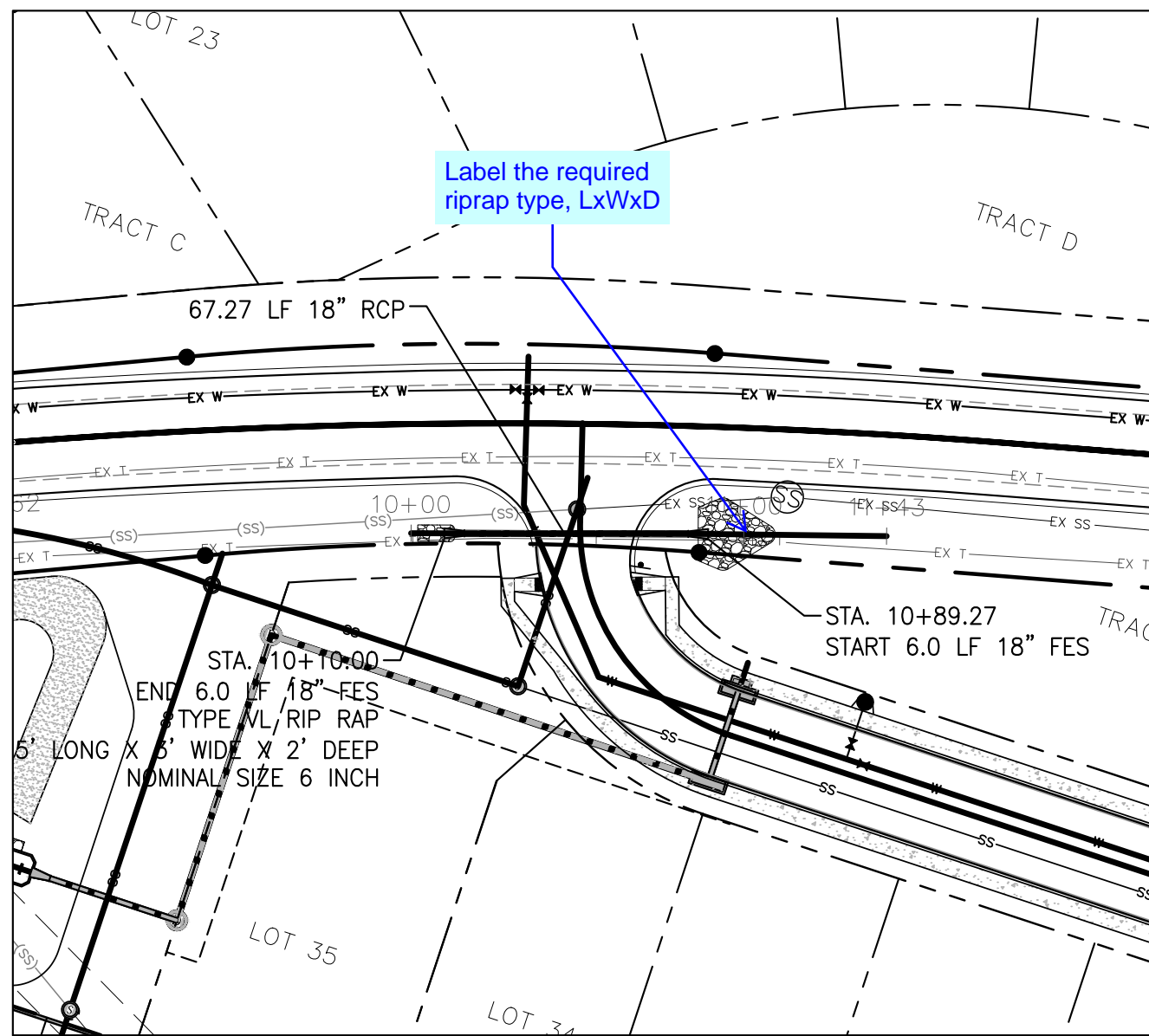
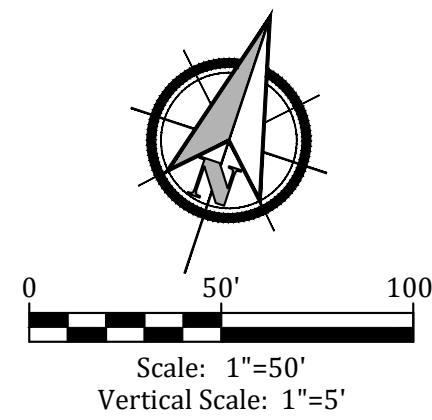
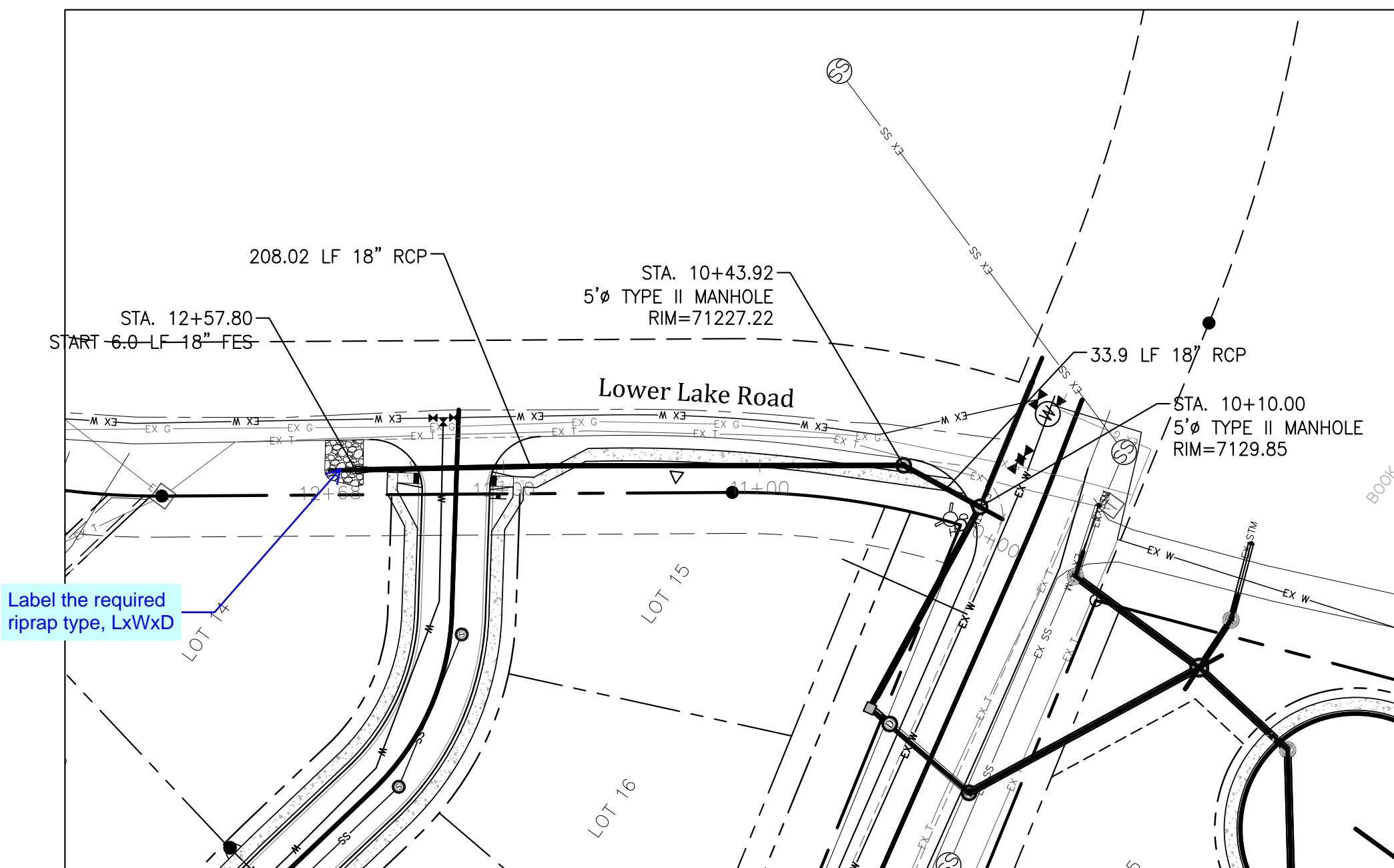
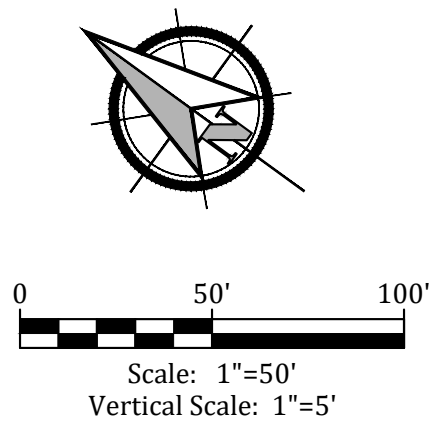
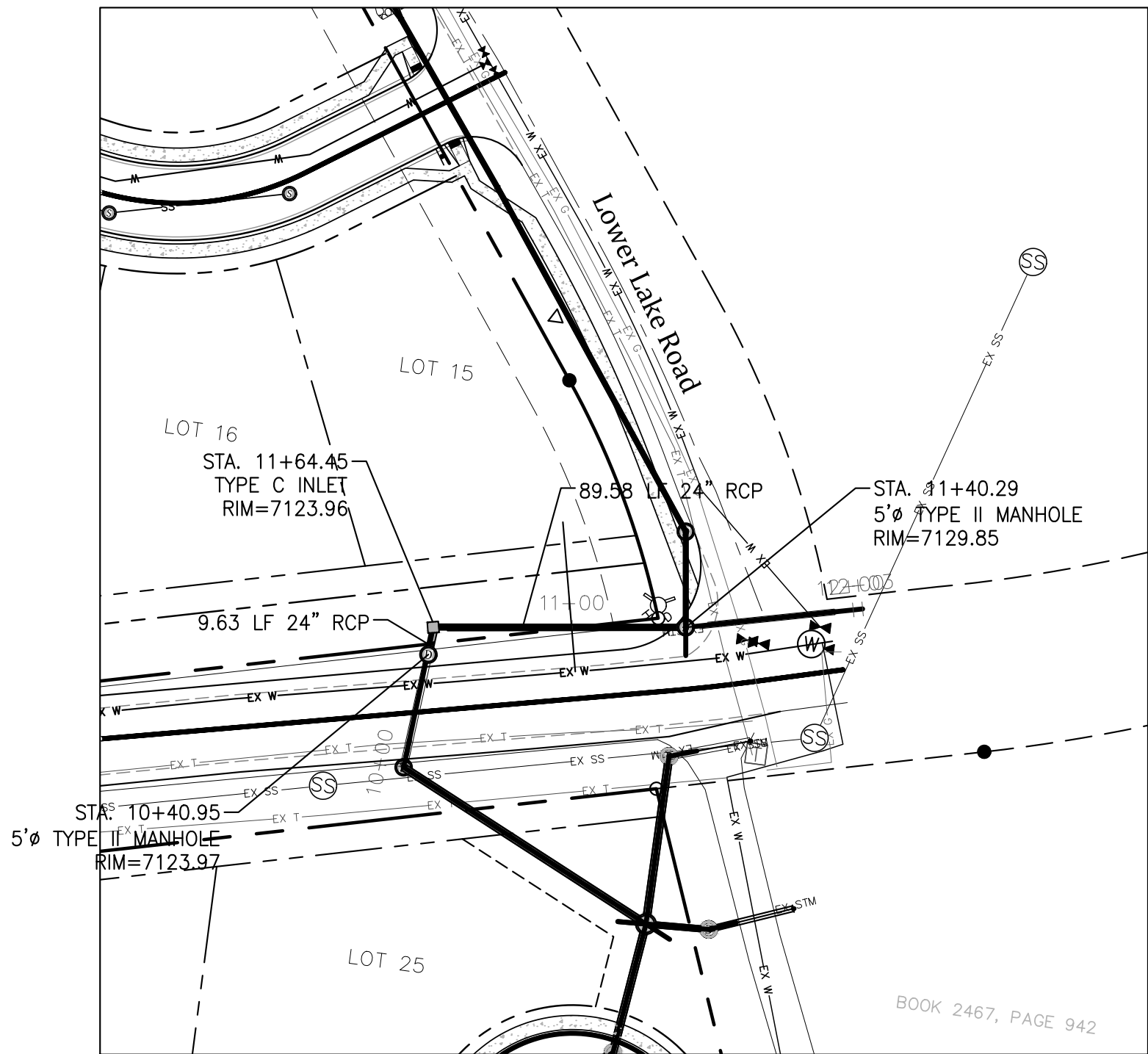
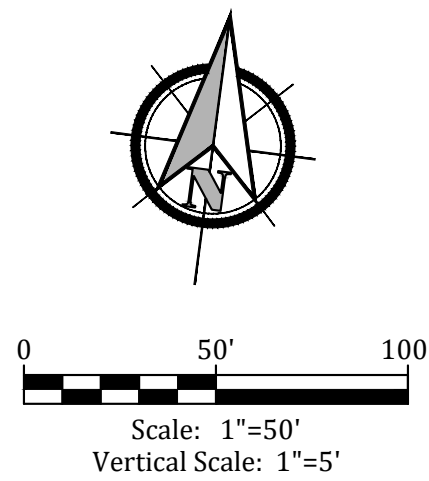
The Beach at Woodmoor Filing No. 1

North Storm Drain

Storm Sewer Plan and Profiles

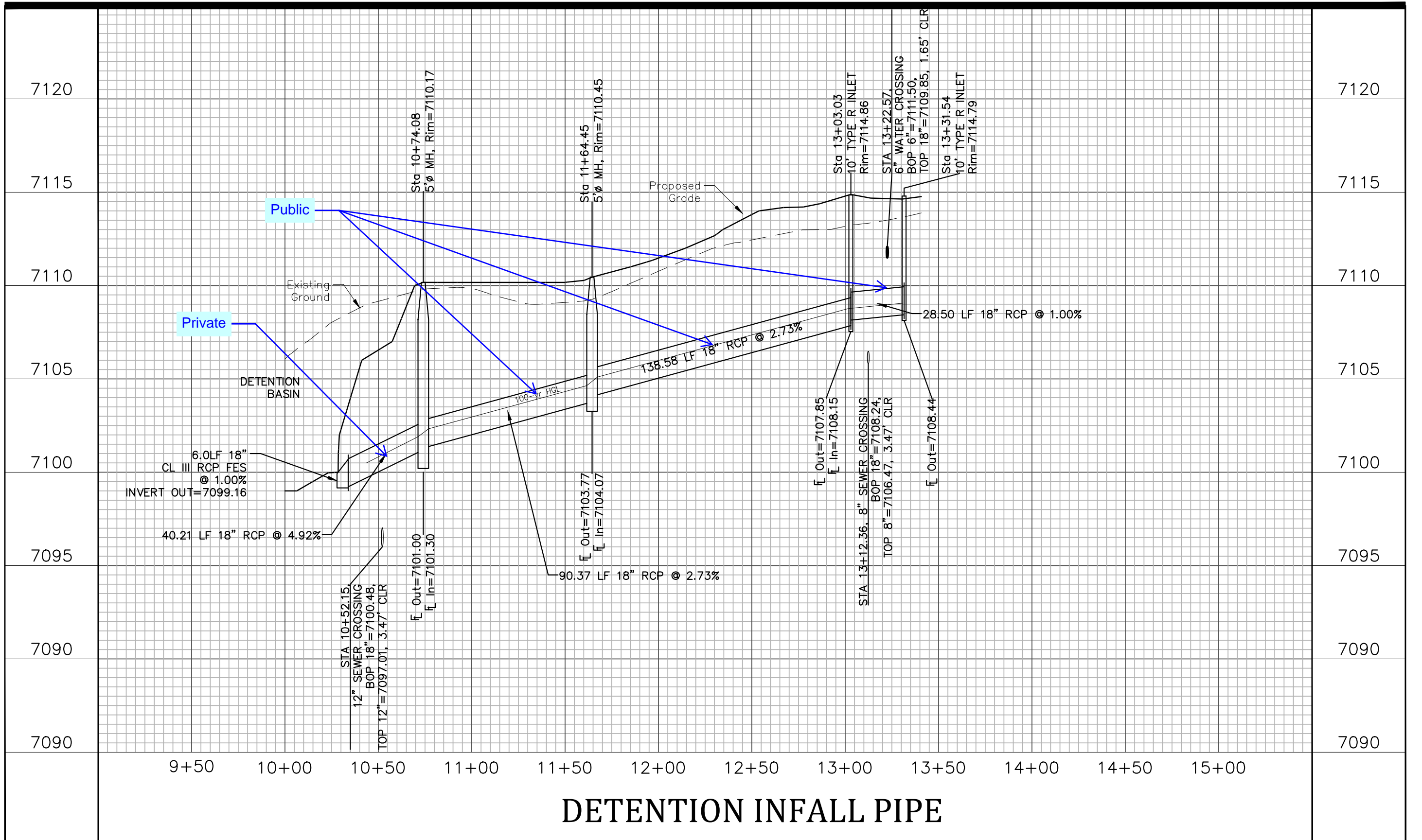
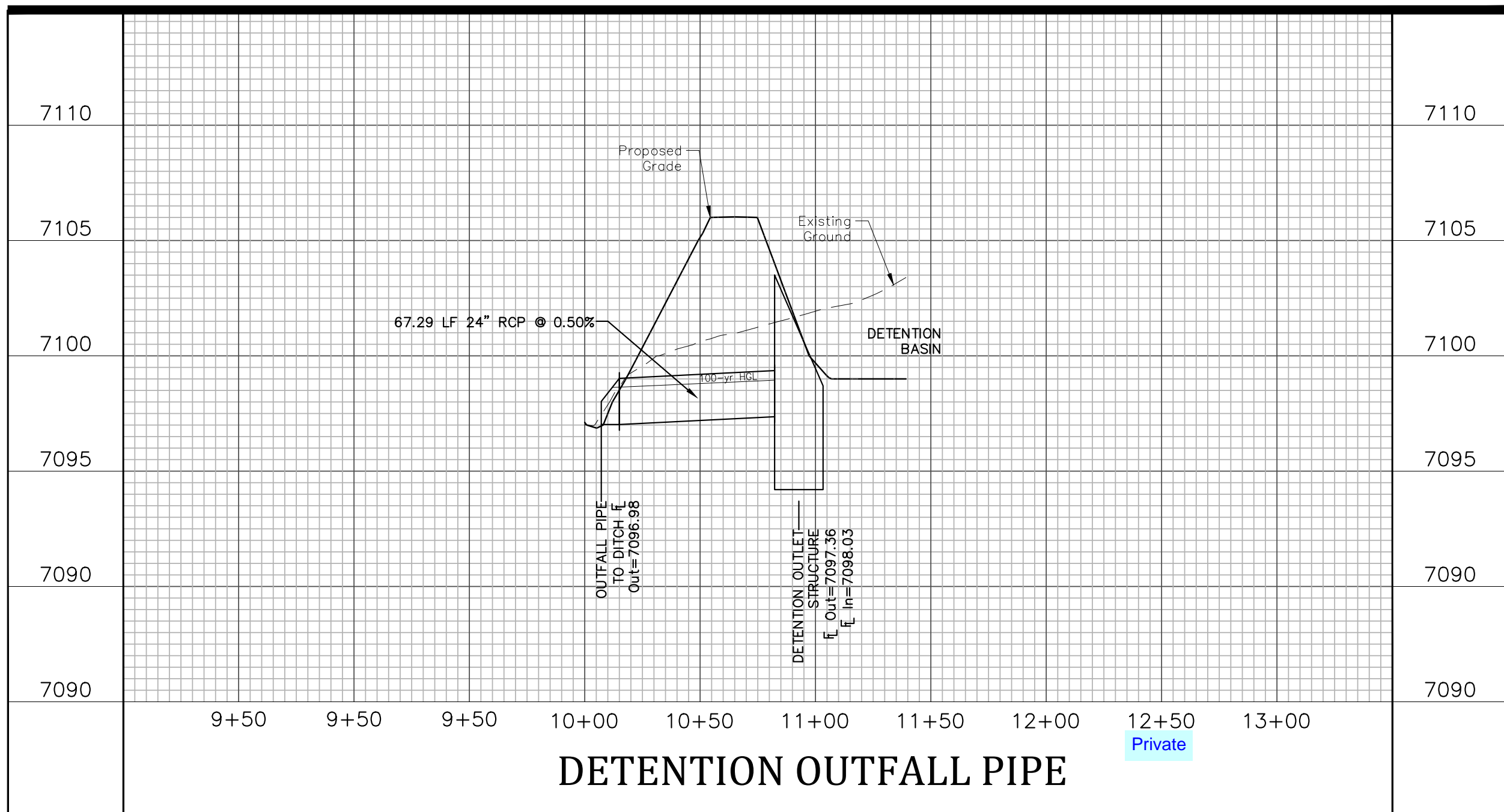
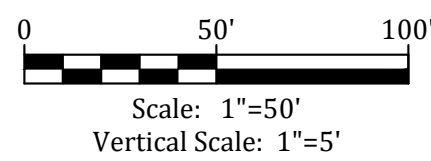
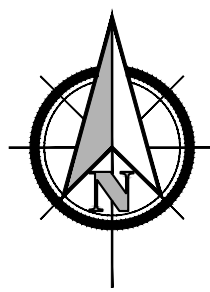
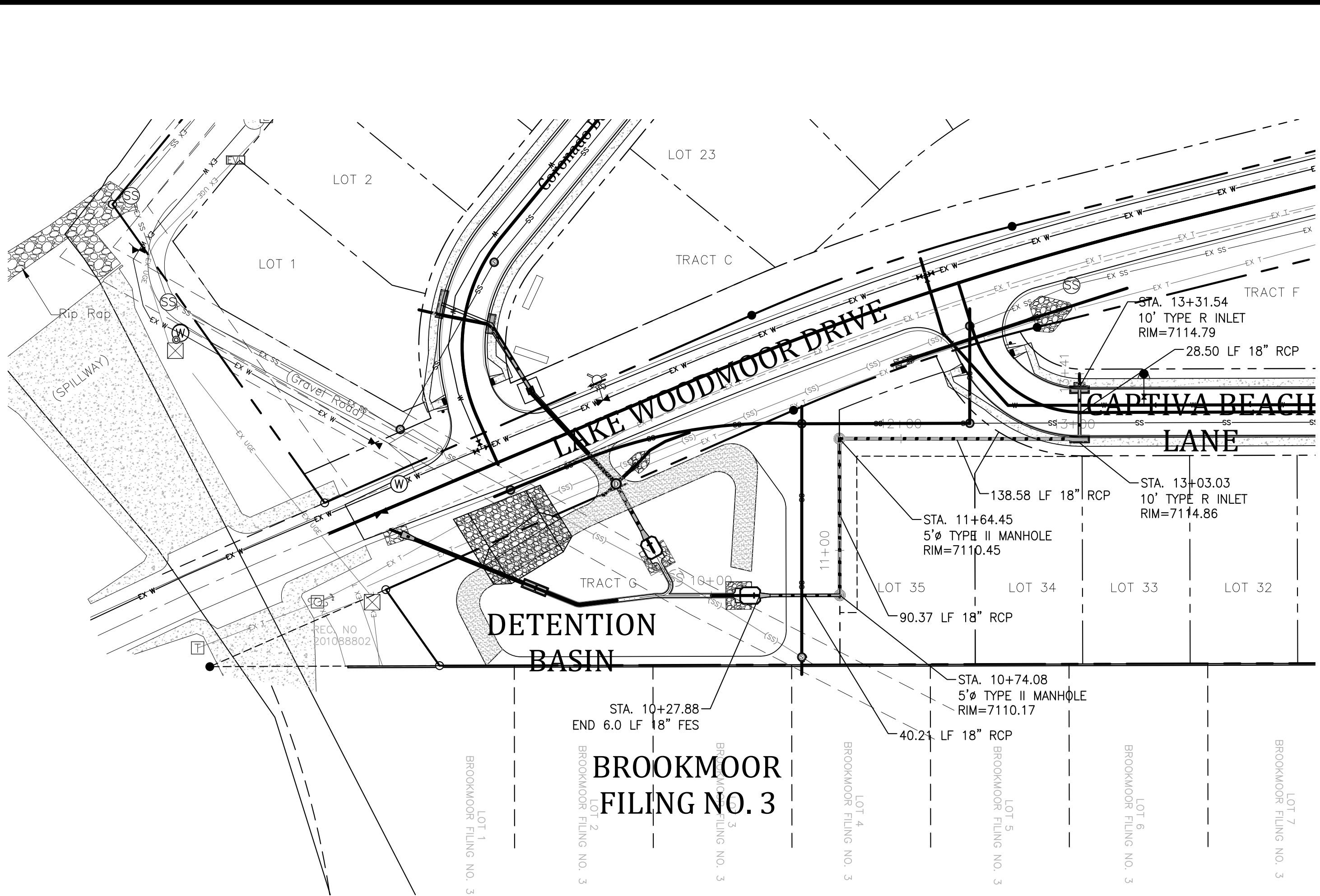
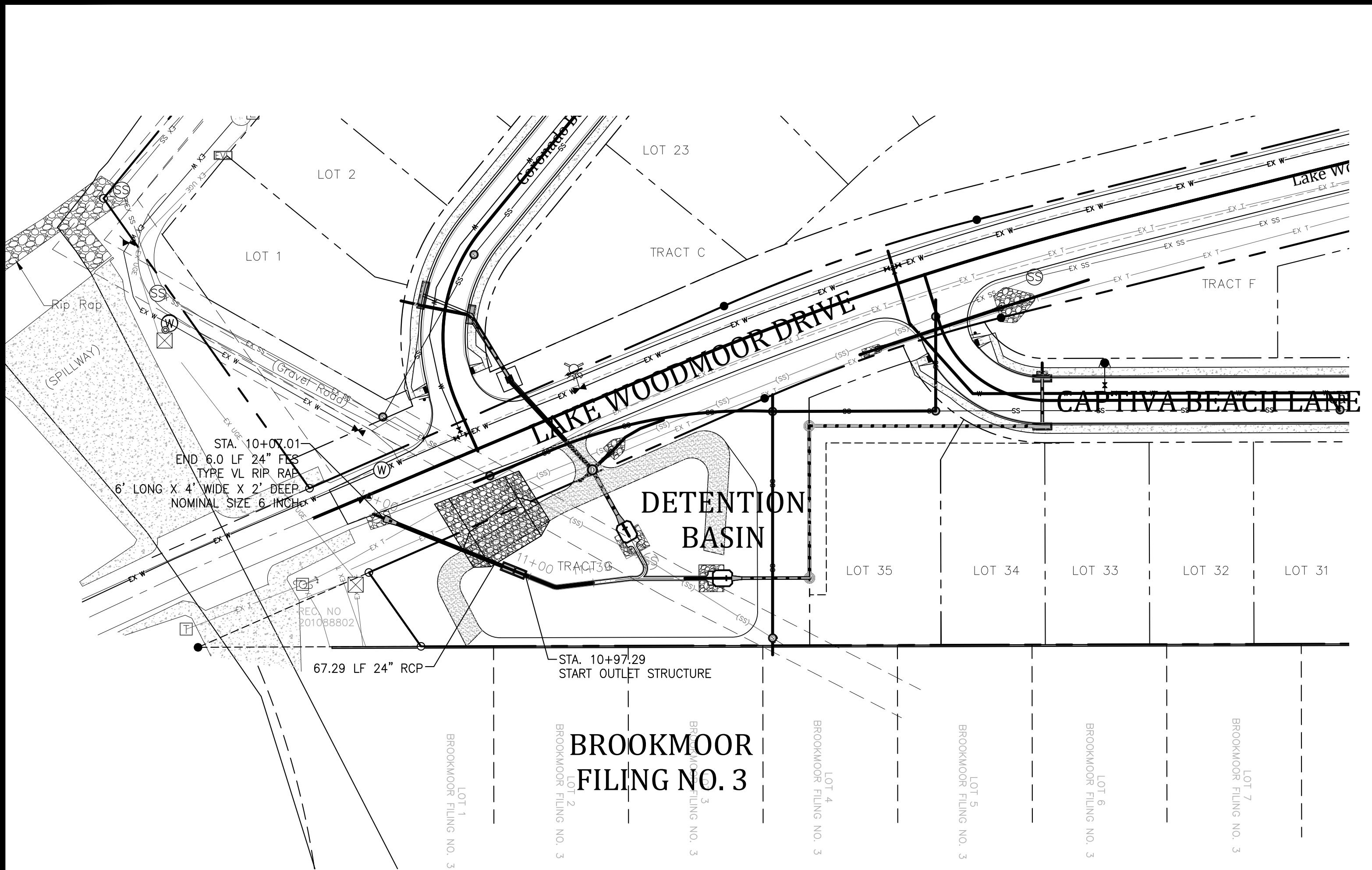
El Paso County, Colorado

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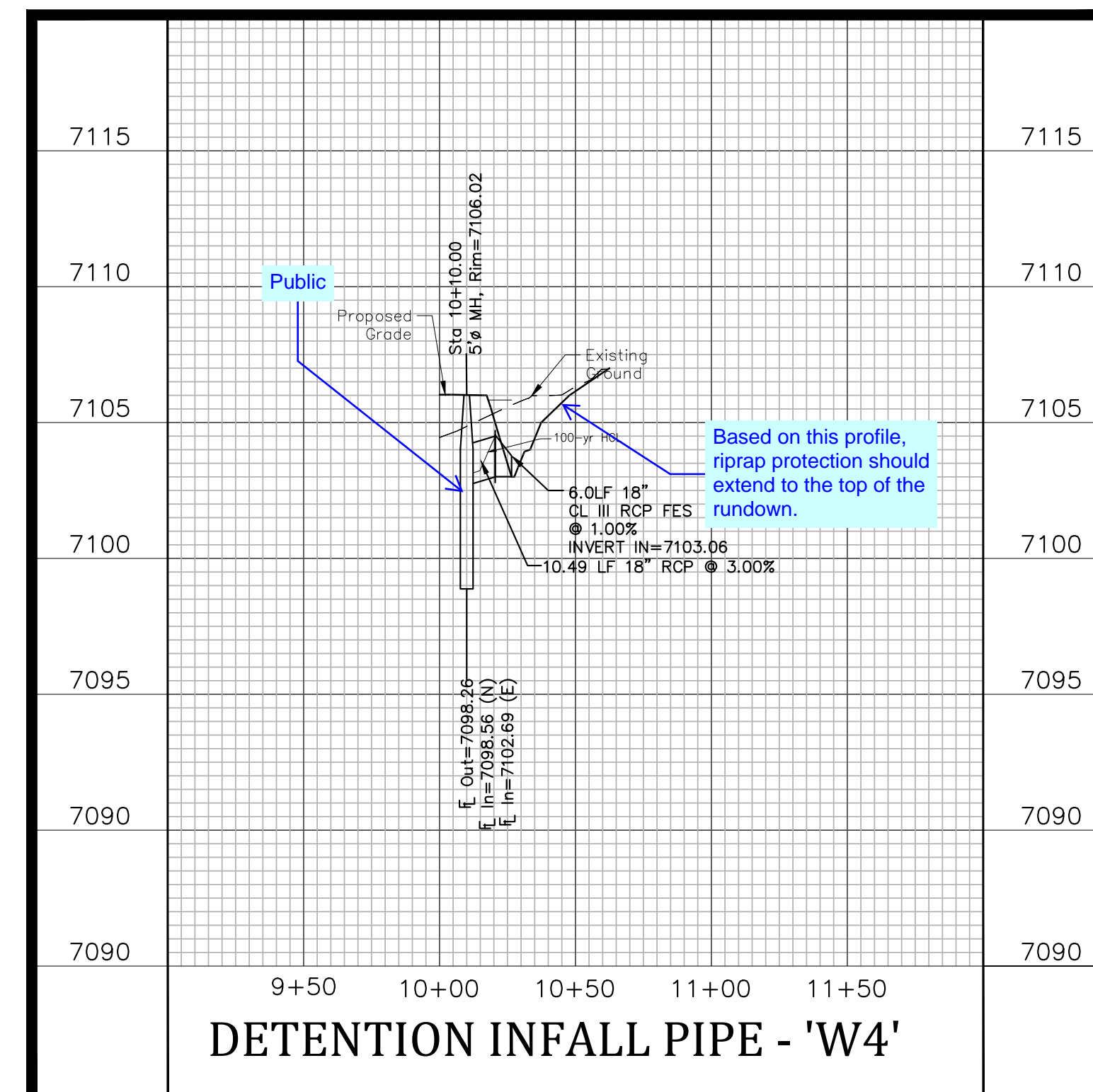
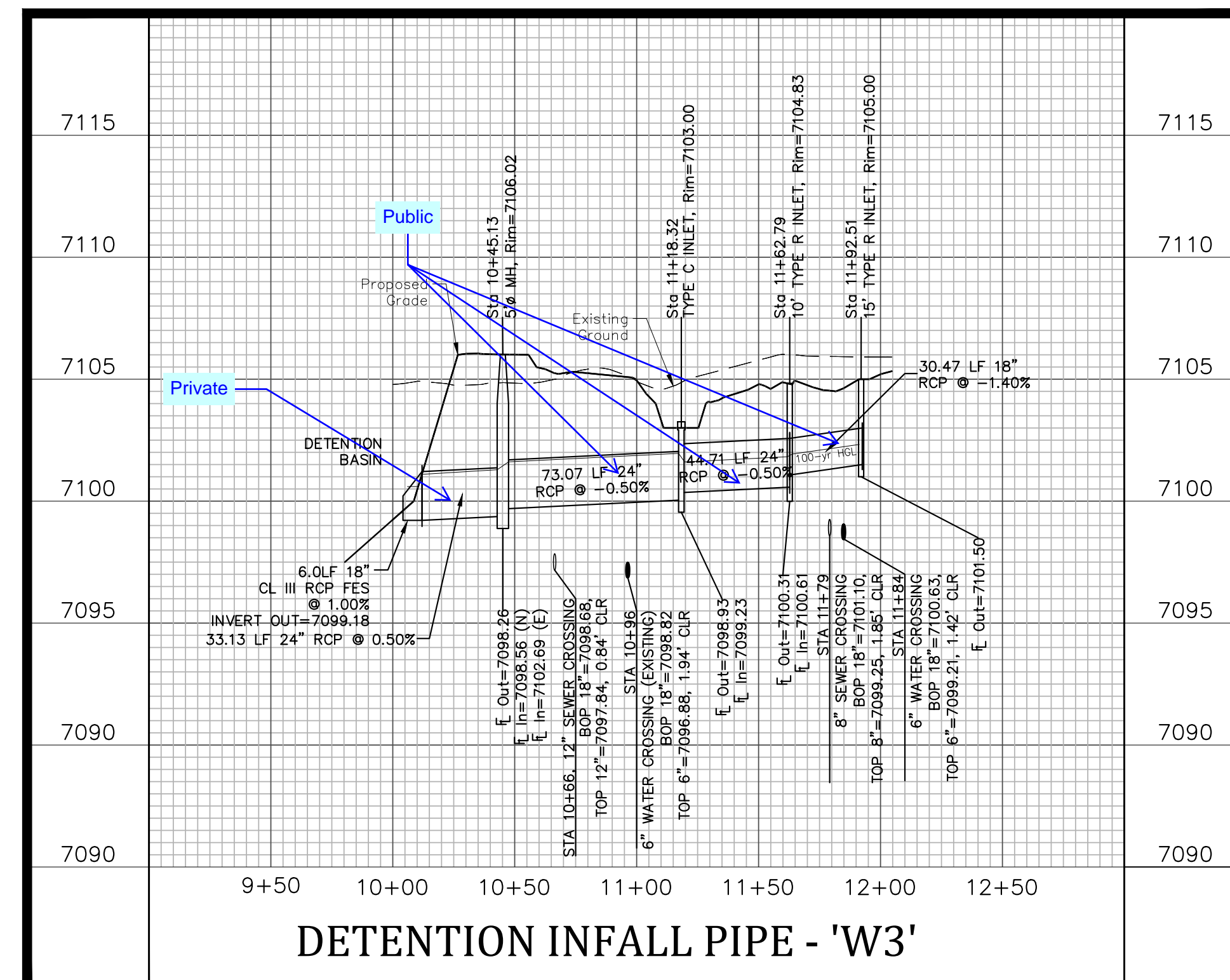
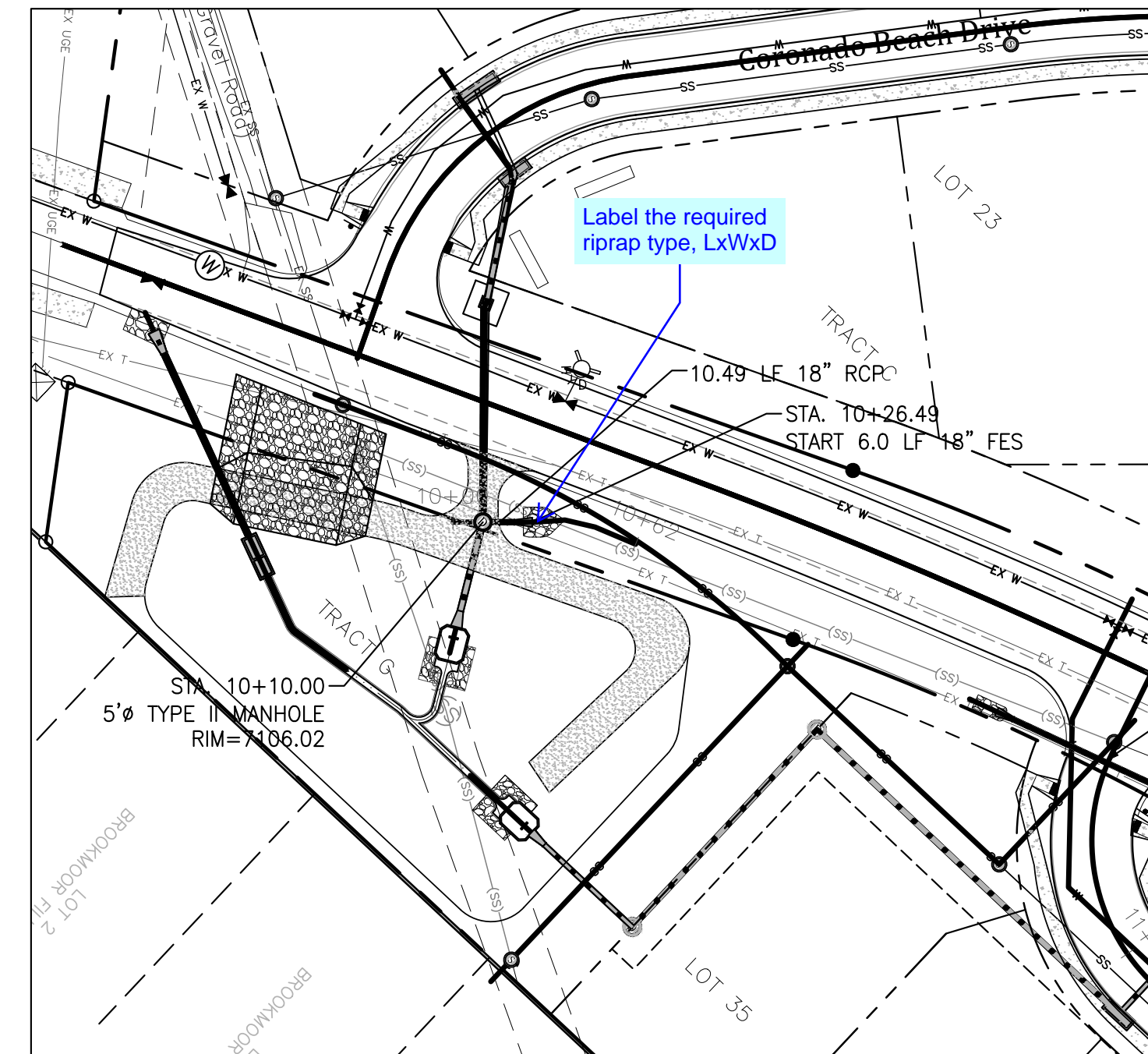
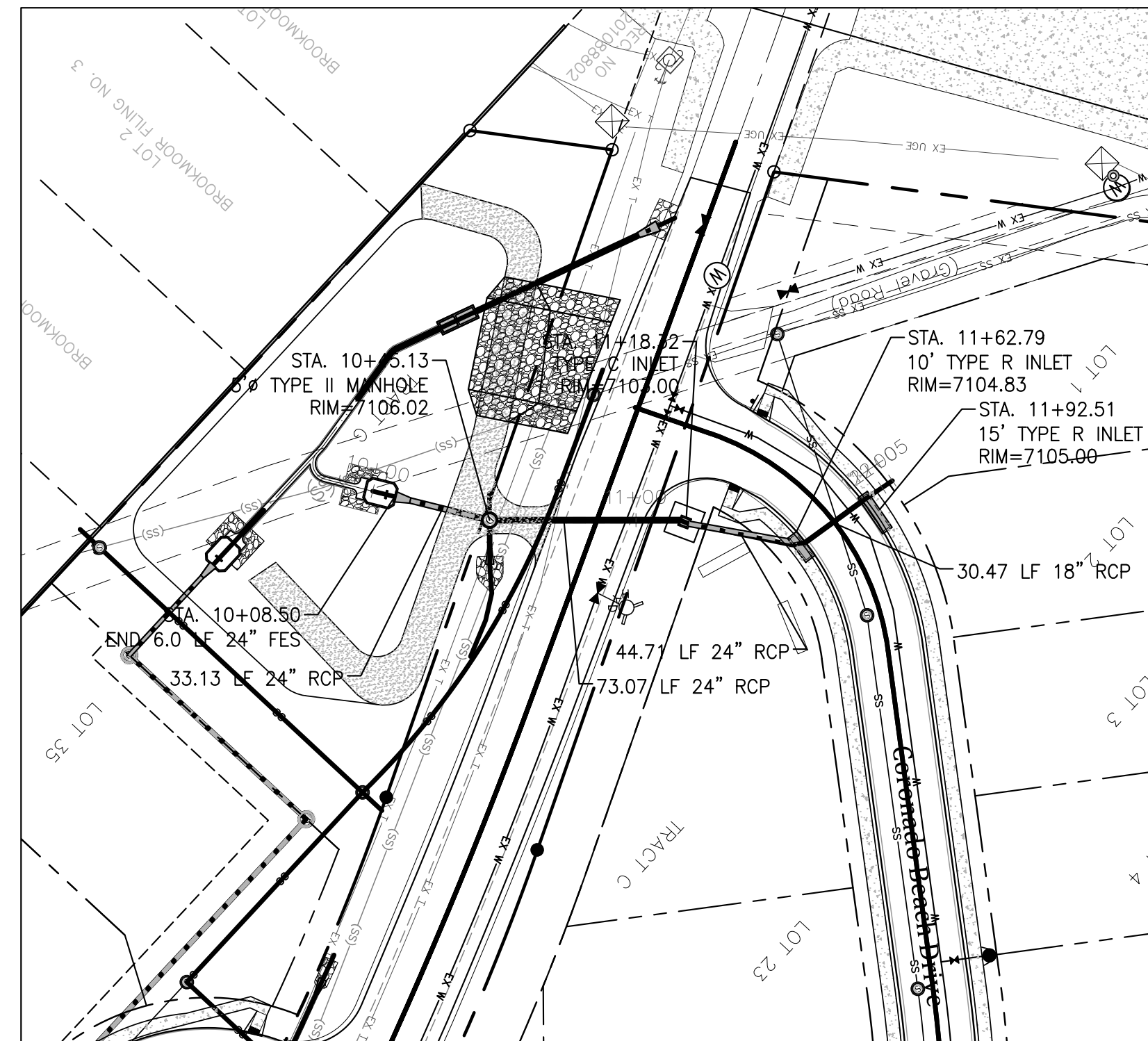


The Beach at Woodmoor Filing No. 1
North Storm Drain
Storm Sewer Plan and Profiles
El Paso County, Colorado

Project No.:	16059
Date:	January 16, 2018
Design:	JAK
Drawn:	JAK
Check:	AWMc
Revisions:	



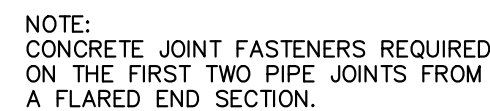
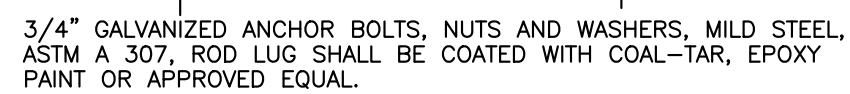
The Beach at Woodmoor Filing No. 1
South Storm Drain
Storm Sewer Details
El Paso County, Colorado



The Beach at Woodmoor Filing No. 1

East Storm Drain Storm Sewer Plan and Profiles El Paso County, Colorado

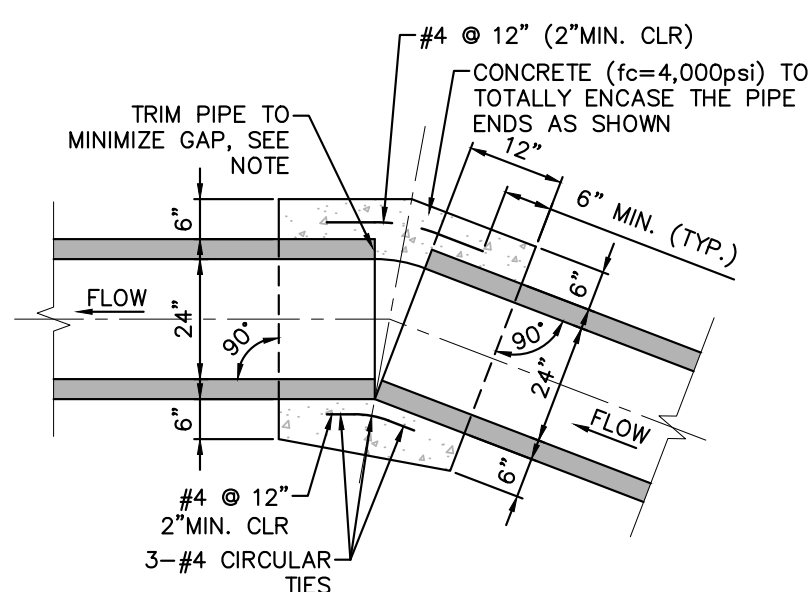
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Design:	JAK
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Revisions:	



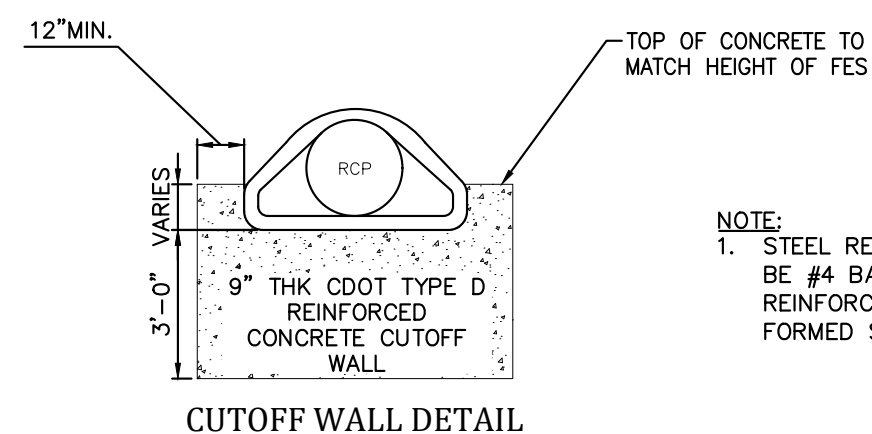
PIPE DIAMETER	F
18"–30"	5"
36"–42"	6"
48"–60"	7"
72"–84"	9"

A CONCRETE PIPE JOINT FASTENER
15 SCALE: NTS

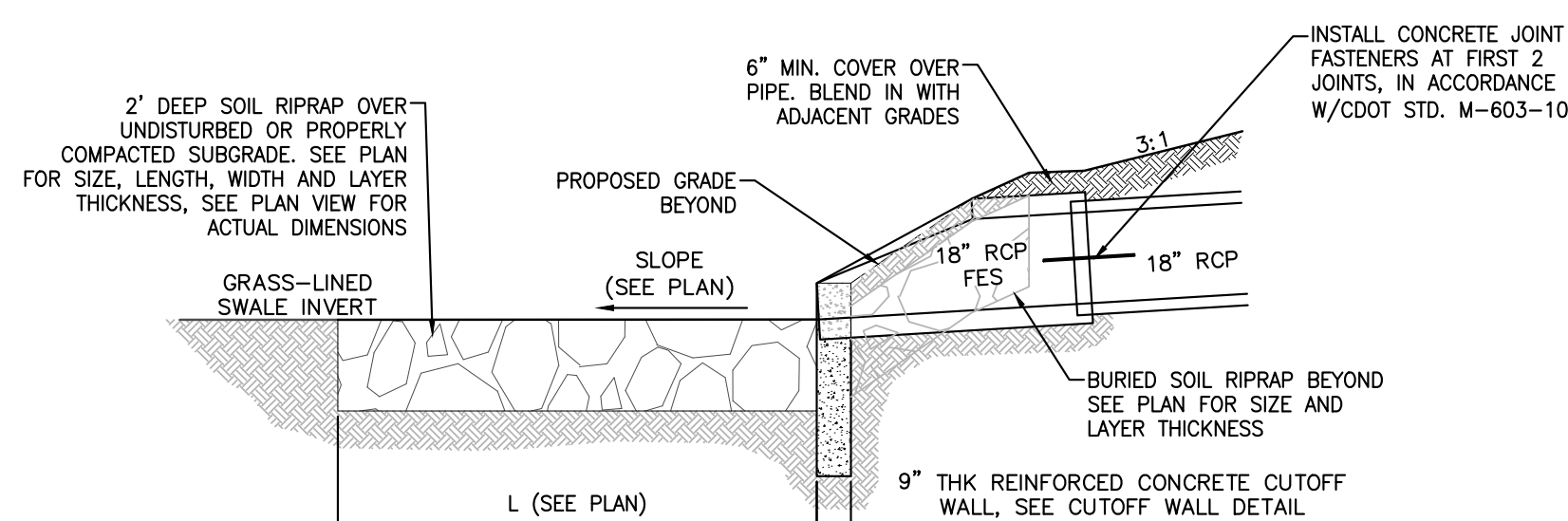
- NOTES:**
1. PIPE ENDS (ENTIRE END) SHALL BE CUT AT AN ANGLE TO MINIMIZE GAP BETWEEN PIPES. 6-INCH MAXIMUM GAP BETWEEN PIPE ENDS.
 2. AN INTERIOR FORM SHALL BE USED TO PROVIDE A SMOOTH INTERIOR JOINT. THE FORM MUST BE REMOVED AFTER CONSTRUCTION.



STORM SEWER CONCRETE COLLAR
 SCALE: NTS



- NOTE:**
1. STEEL REINFORCEMENT FOR CUTOFF WALL SHALL BE #4 BARS AT 12" O.C. EACH WAY. STEEL REINFORCEMENT CLEARANCES SHALL BE 2" TO FORMED SURFACES AND FES, AND 3" TO SOIL.



ELEVATION VIEW

C
15

18" RCP FES PIPE OUTLET w/CONCRETE
CUTOFF WALL AND JOINT RESTRAINTS
SCALE: NTS

SOIL RIPRAP

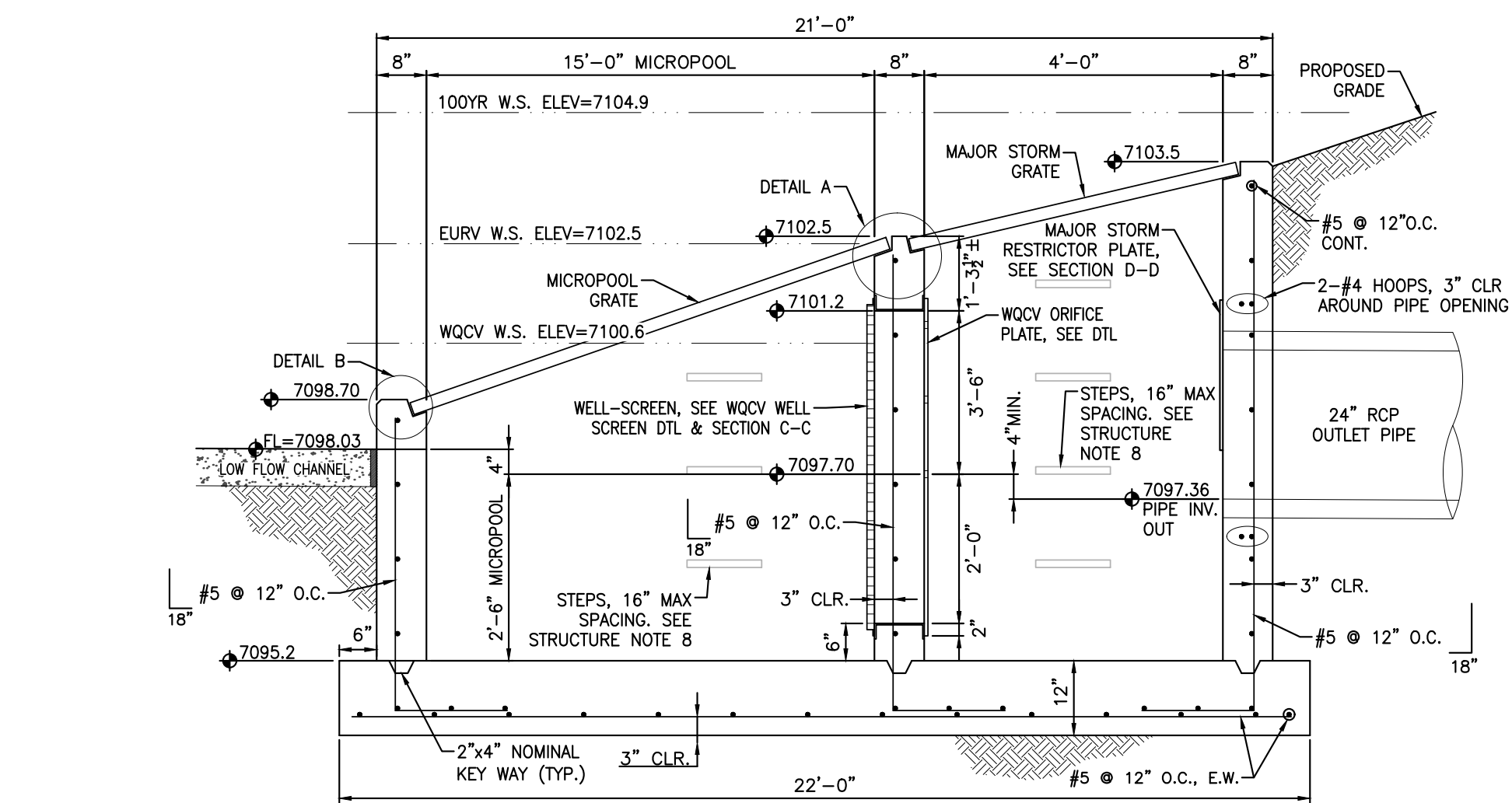
1. THE SOIL MATERIAL SHALL BE NATIVE OR TOPSOIL AND MIXED WITH SIXTY FIVE PERCENT (65%) RIPRAP AND THIRTY FIVE PERCENT (35%) SOIL BY VOLUME. SOIL RIPRAP SHALL CONSIST OF A UNIFORM MIXTURE OF SOIL AND RIPRAP WITHOUT VOIDS.
2. CONTRACTOR SHALL COOPERATE WITH ENGINEER IN OBTAINING AND PROVIDING SAMPLES 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 SHOWN.
5. THE SUBSTRATE 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 DENSITY FOR 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 T98.
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. GRADES OF LEAST TWO (2) PERCENT 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 CONTRACTOR 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.

CLASSIFICATION AND GRADATION OF RIPRAP			
RIPRAP DESIGNATION	% SMALLER THAN GIVEN SIZE BY WEIGHT	INTERMEDIATE 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	18 15 12 4	12**

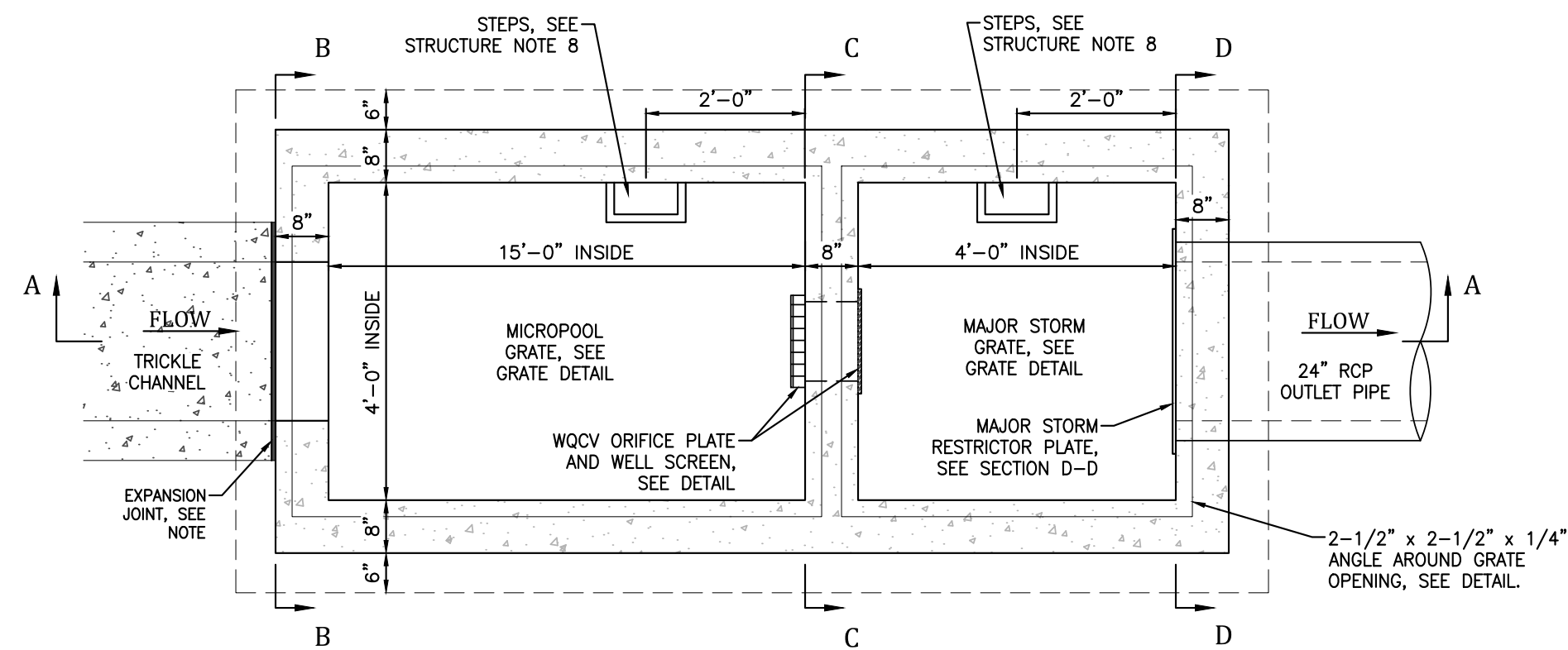
* d50=MEAN PARTICLE SIZE (INTERMEDIATE DIMENSION) BY WEIGHT.
 ** MIX VL, L AND M RIPRAP WITH 35% TOPSOIL (BY VOLUME) AND BURY
 WITH 4-5 INCHES OF TOPSOIL, ALL VIBRATION COMPACTED &
 REVEGETATE.
 (TABLE MD-7: CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP.
 UDFCD, DRAINAGE CRITERIA MANUAL, VOL. 1)

* 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, ALL VIBRATION COMPACTED & REVEGETATE.
 (TABLE MD-7: CLASSIFICATION AND GRADATION OF ORDINARY RIPRAP.
 UDFCD, DRAINAGE CRITERIA MANUAL, VOL. 1)

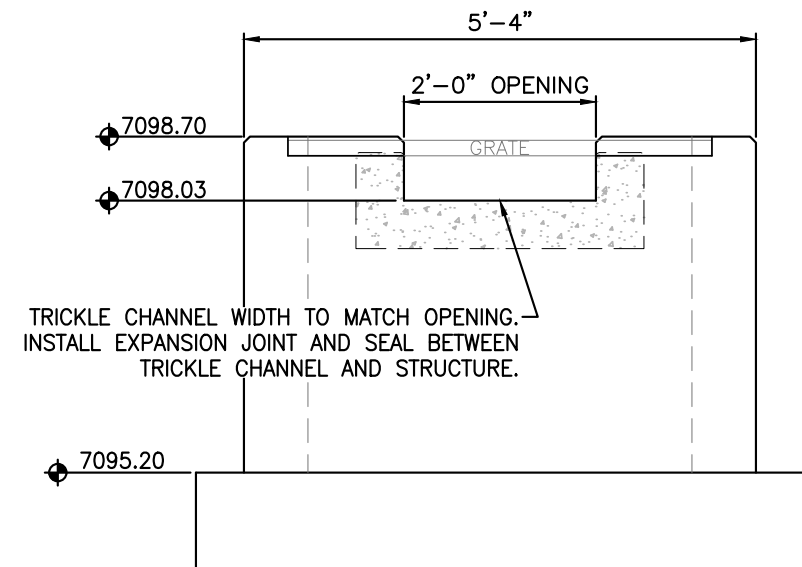
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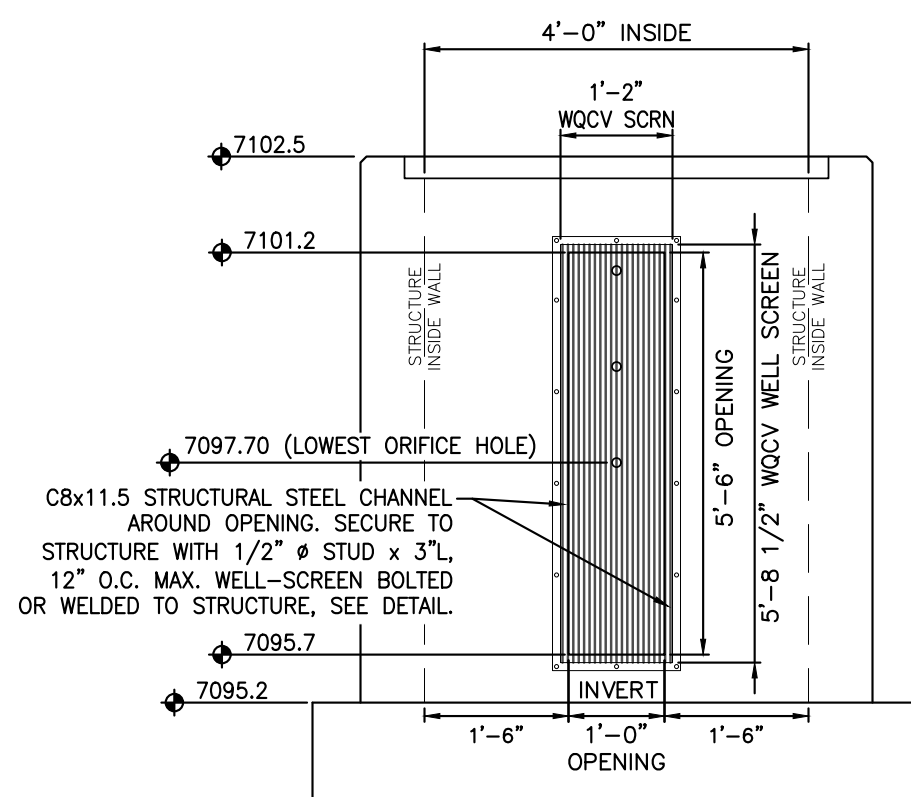
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16
SECTION A-A
SCALE: NTS



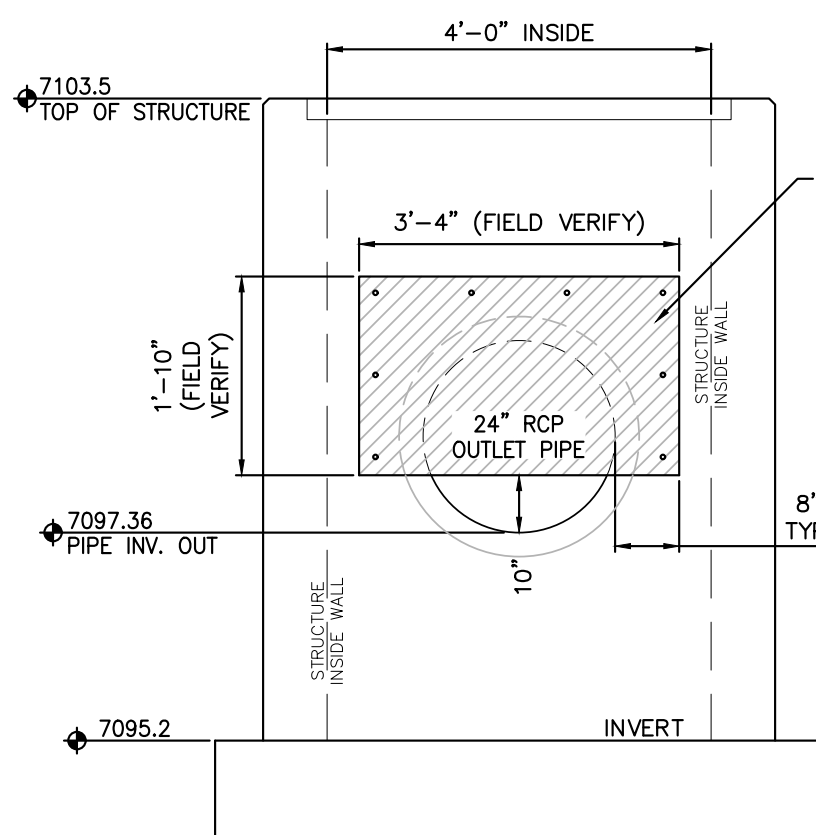
L
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OUTLET STRUCTURE DETAIL
PLAN VIEW
SCALE: NTS



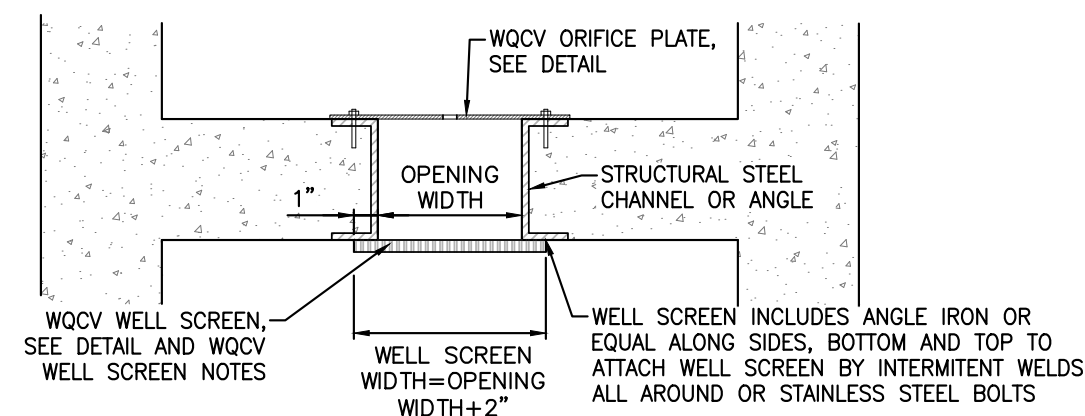
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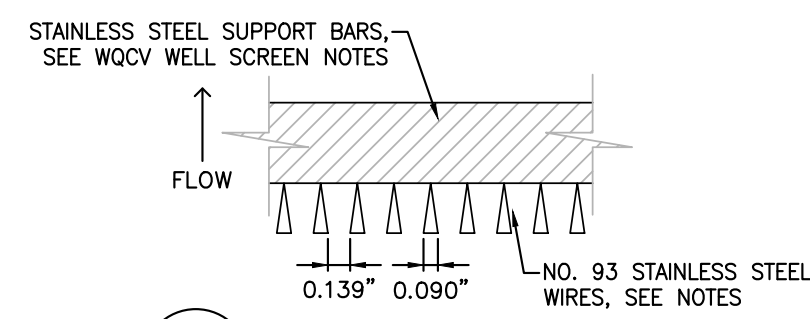
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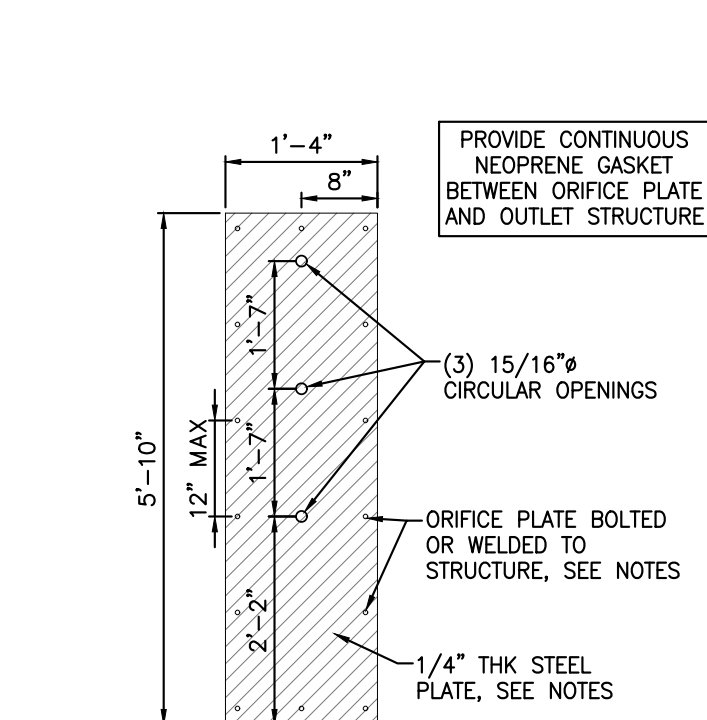
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SECTION D-D
SCALE: NTS



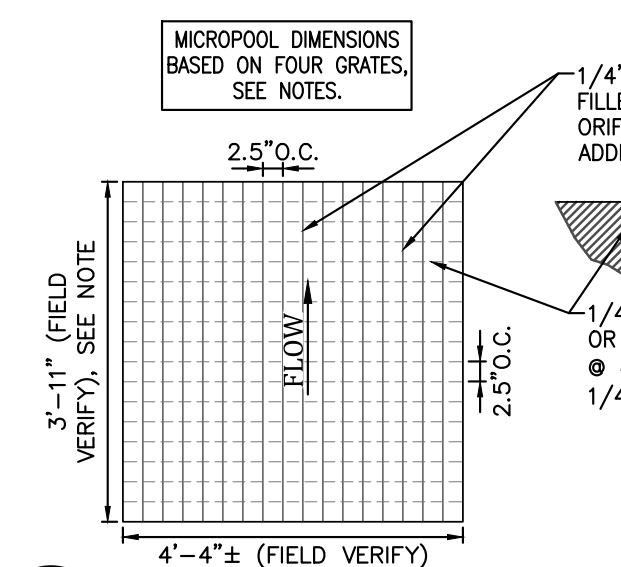
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WQCV ORIFICE PLATE AND WELL SCREEN
SCALE: NTS



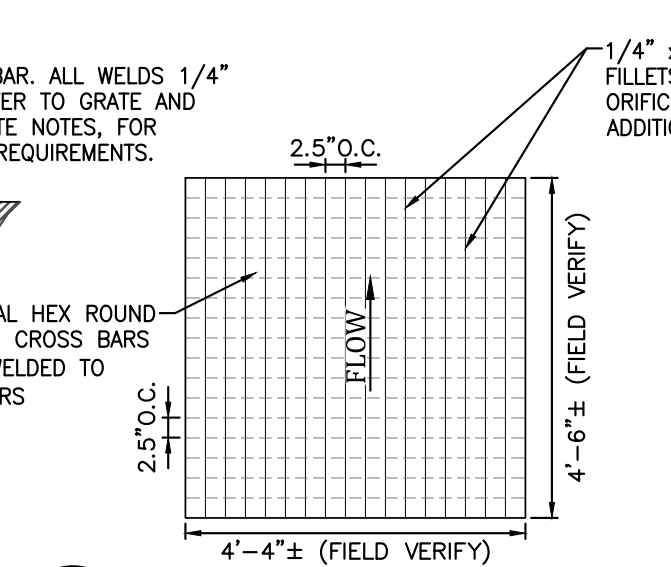
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WQCV WELL SCREEN
SCALE: NTS



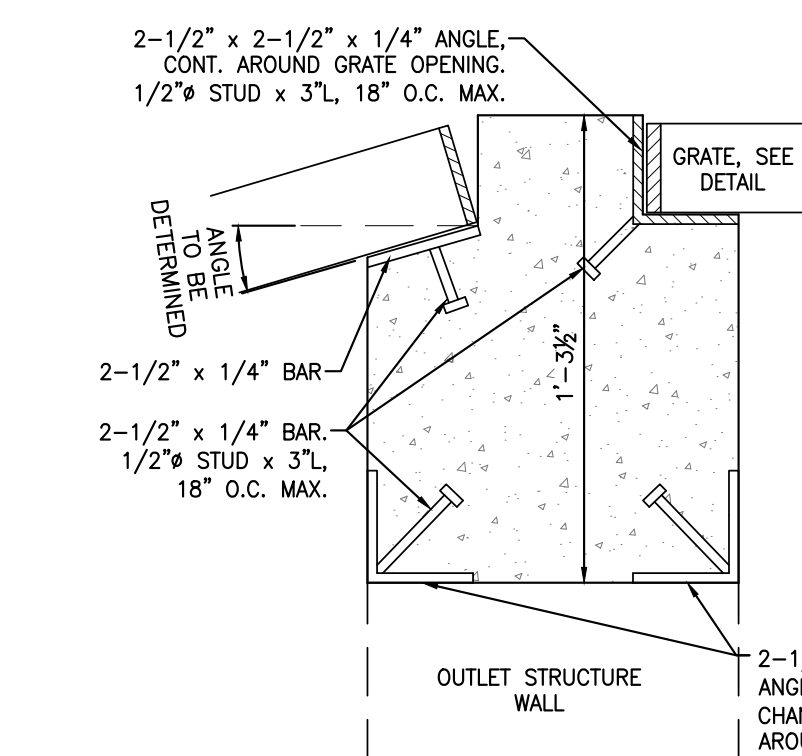
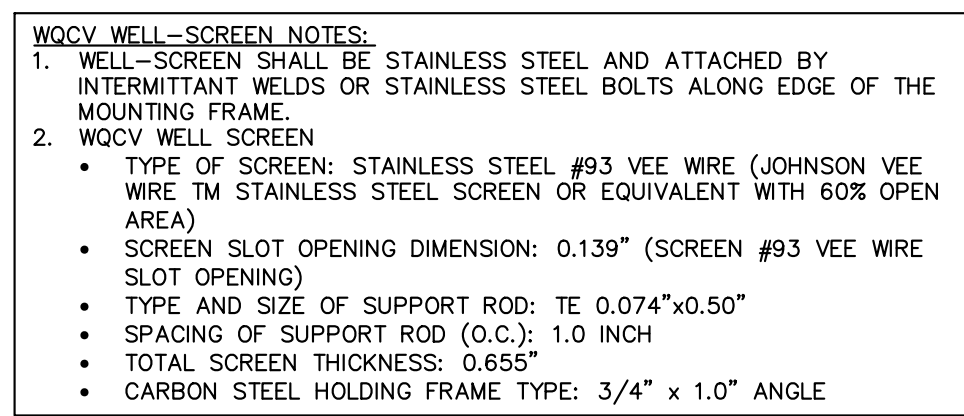
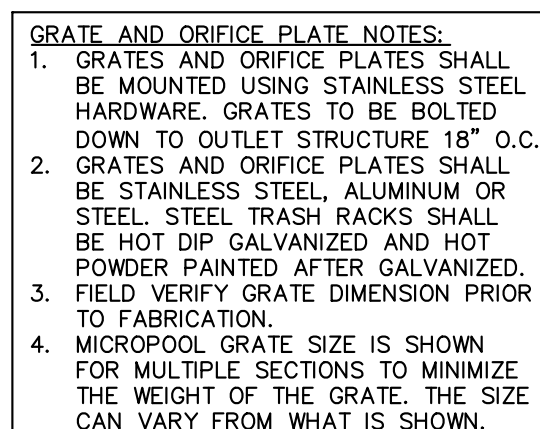
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WQCV ORIFICE PLATE
SCALE: NTS



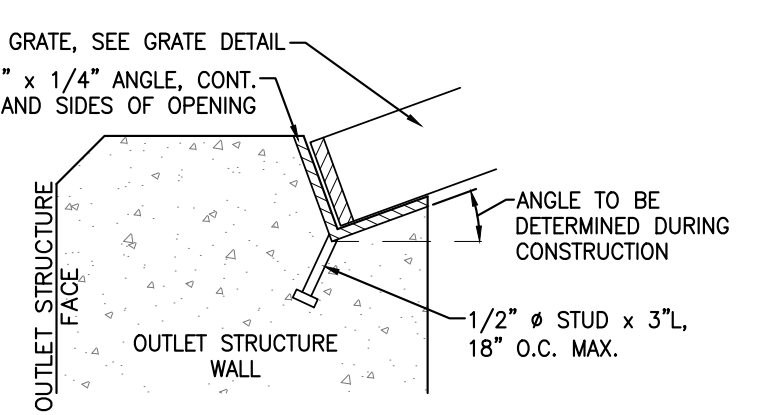
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MICROPOOL GRATE DETAIL
SCALE: NTS



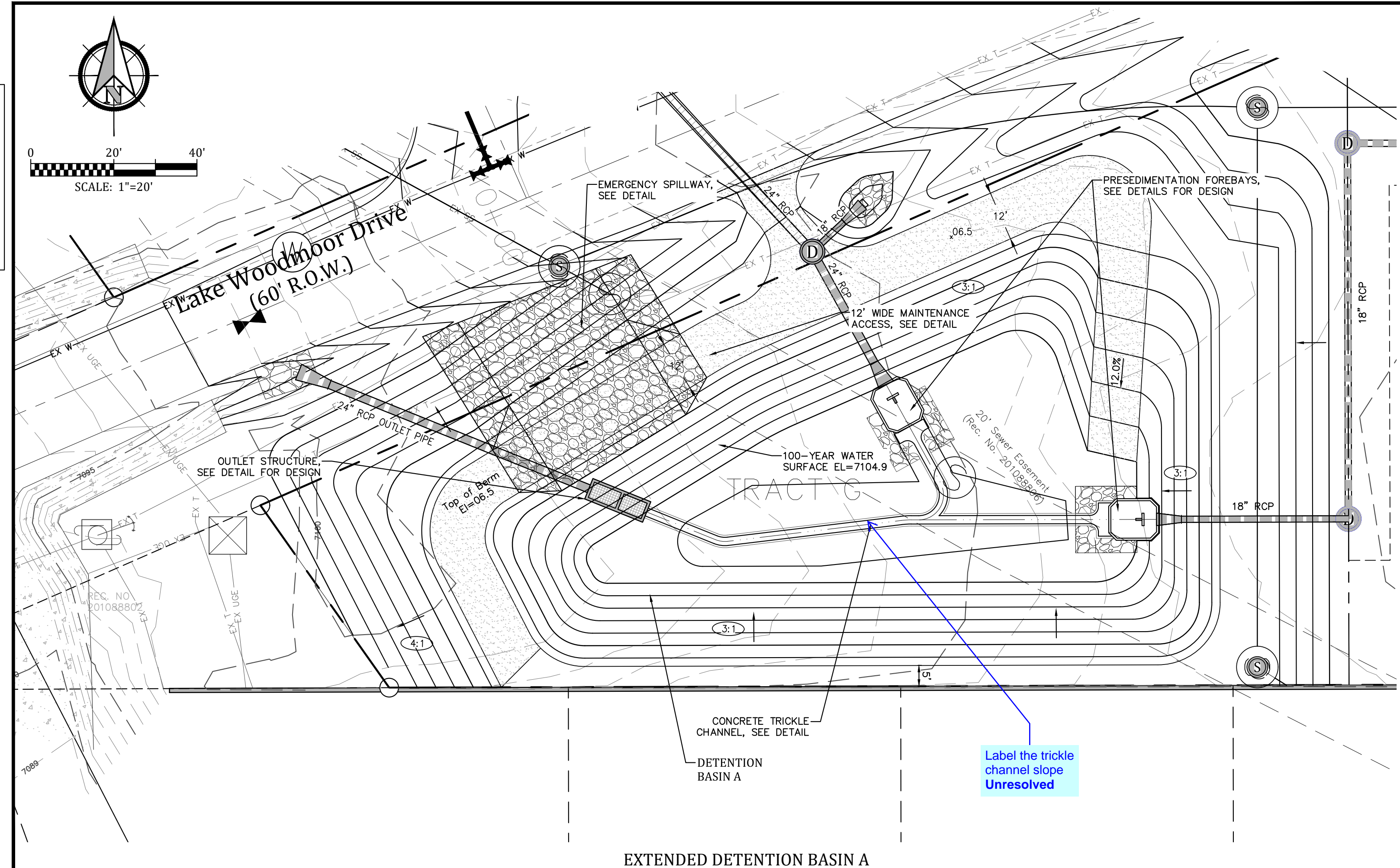
G
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MAJOR STORM GRATE DETAIL
SCALE: NTS



H
16
DETAIL A
SCALE: NTS



I
16
DETAIL B
SCALE: NTS



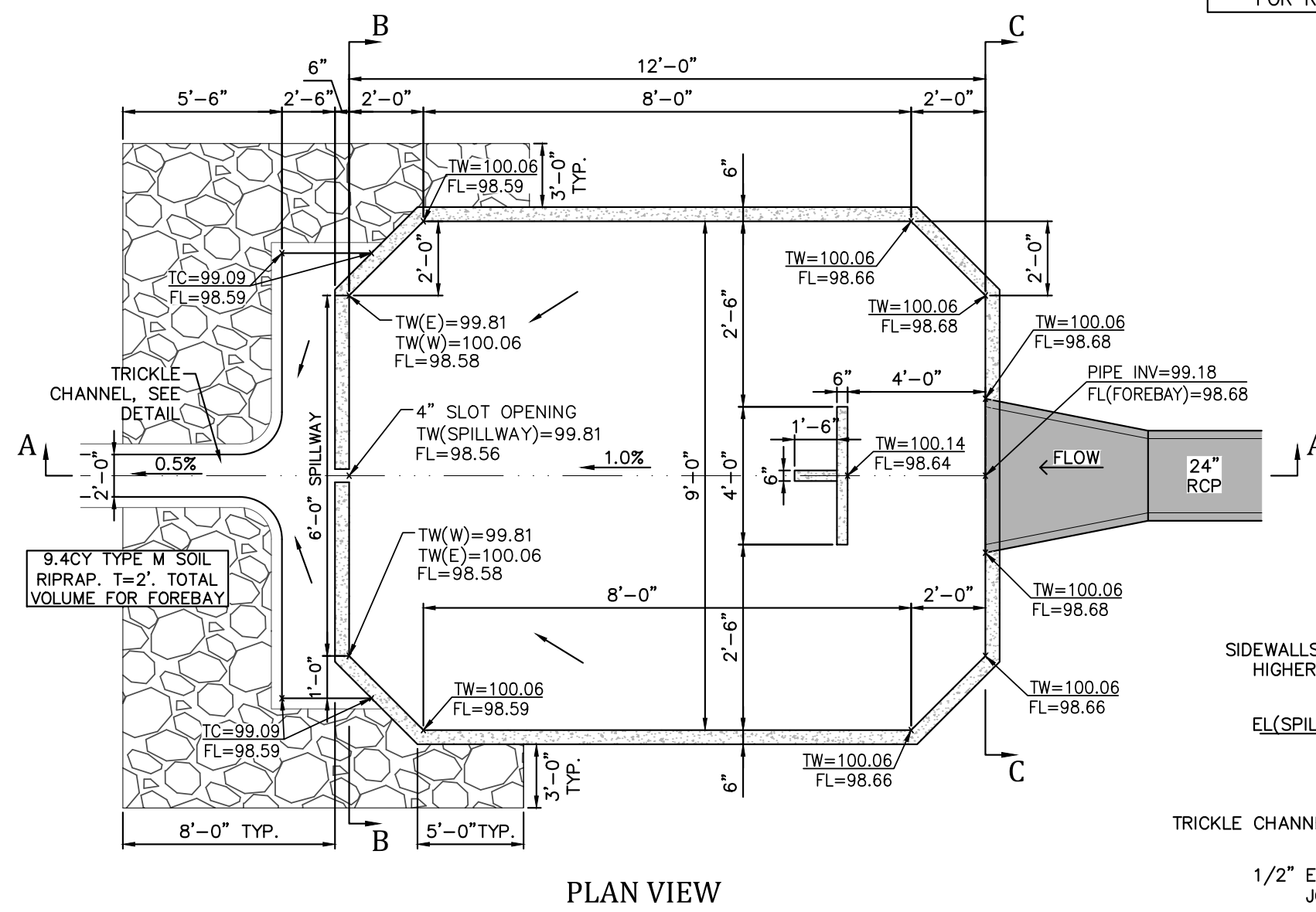
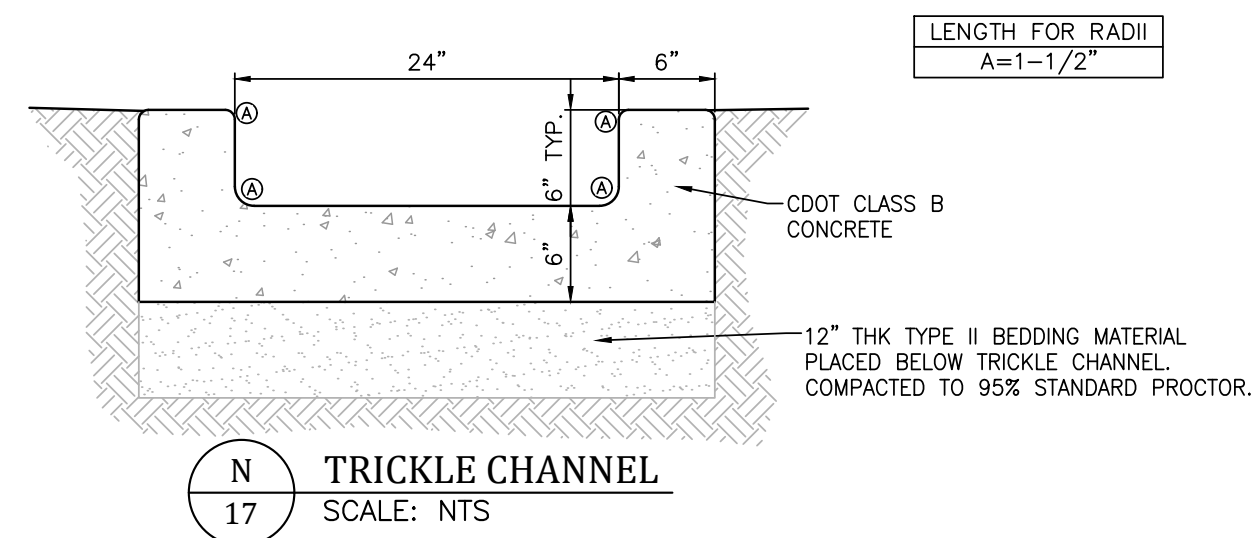
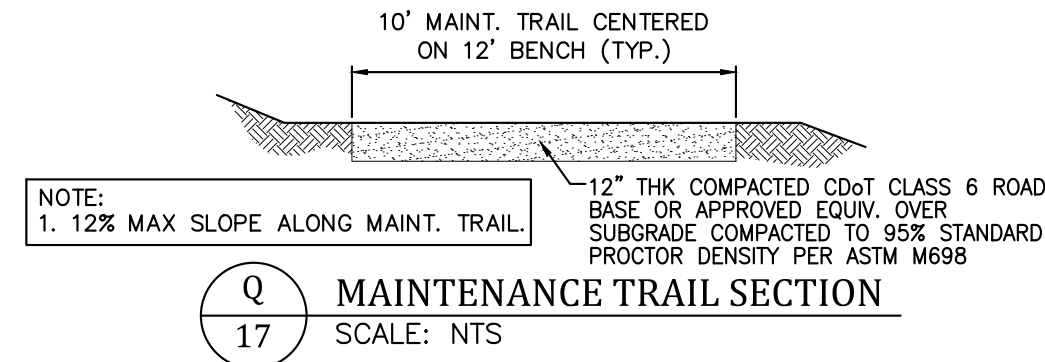
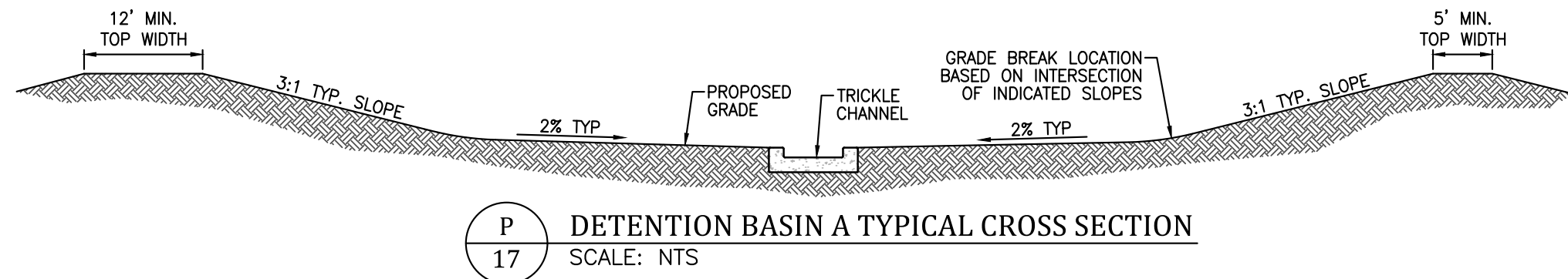
EXTENDED DETENTION BASIN A

The Beach at Lake Woodmoor

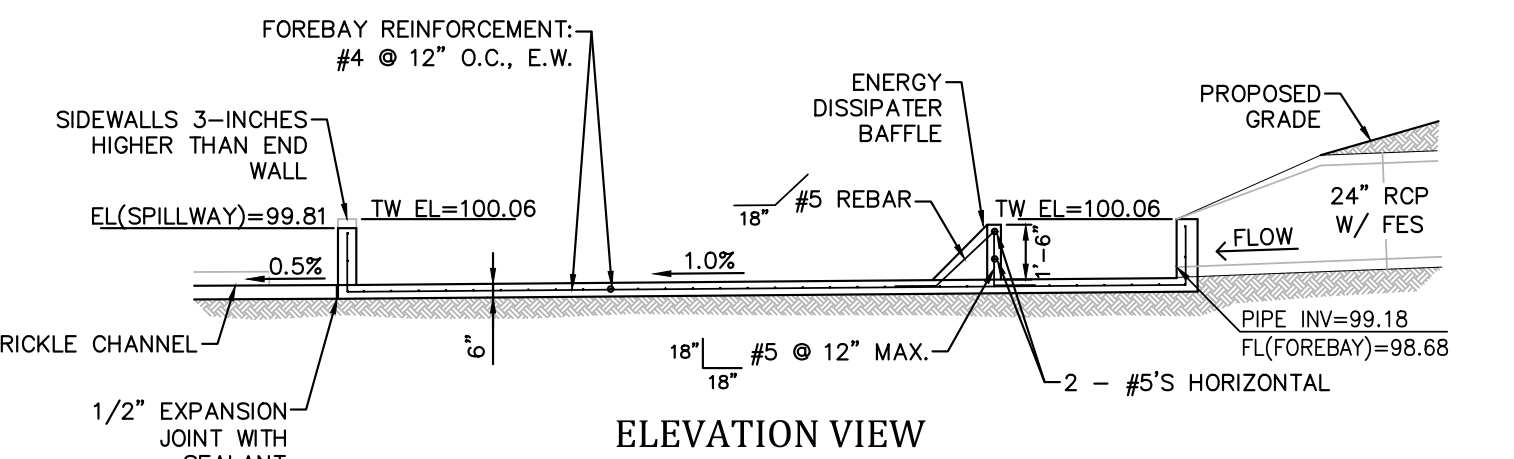
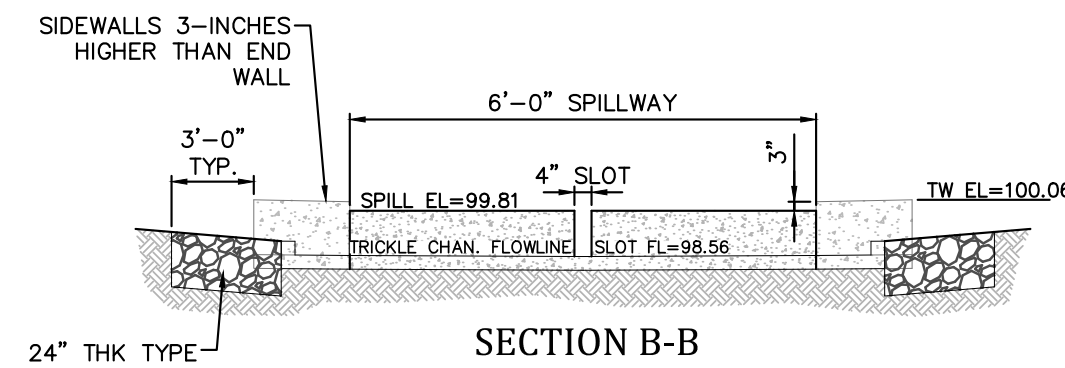
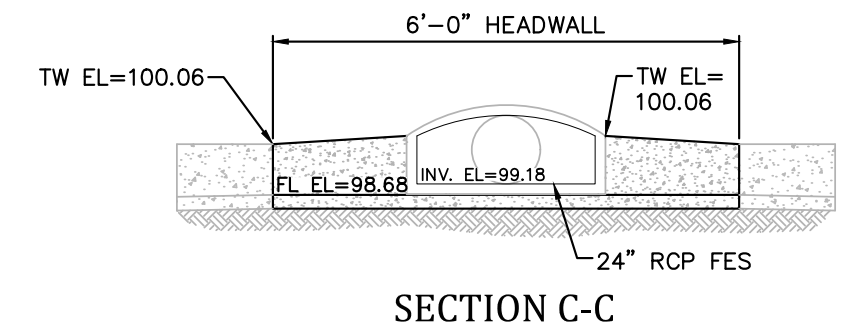
Detention Basin Details El Paso County, Colorado

Project No.:	16059
Date:	January 16, 2018
Design:	CJC
Drawn:	CJC
Check:	AWMc
Revisions:	

Sheet

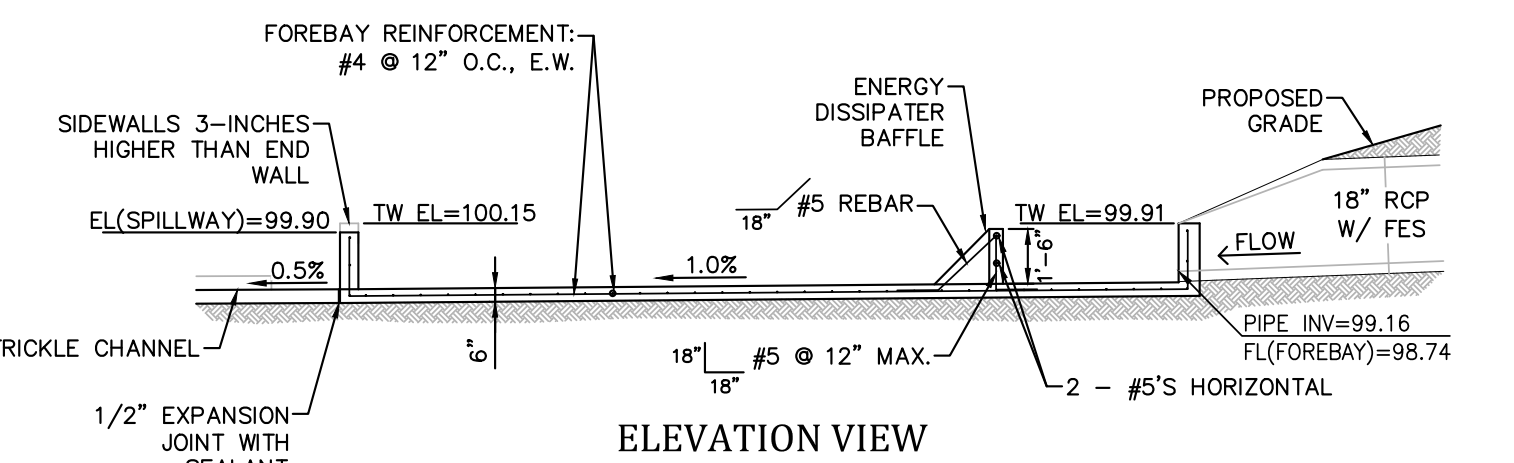
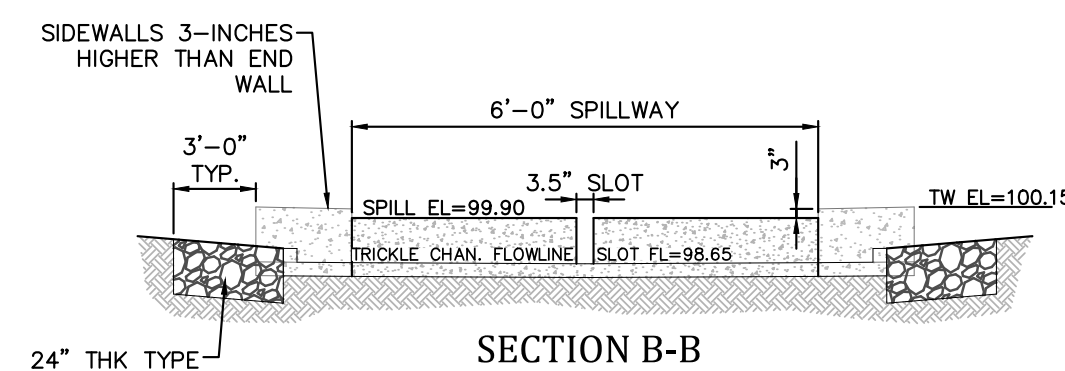
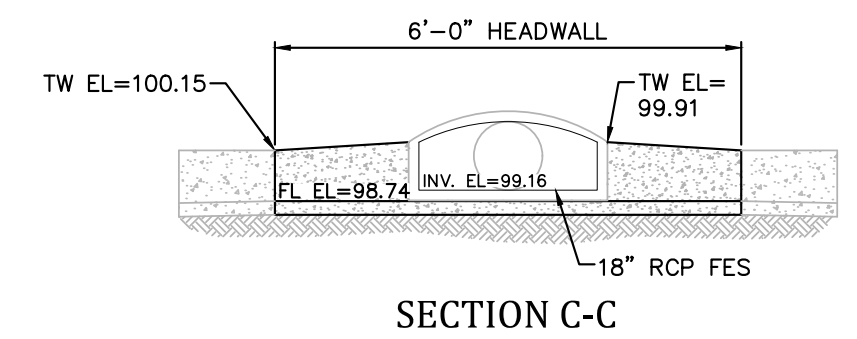


NOTES:
1. REFER TO "STRUCTURE NOTES"
FOR REQUIREMENTS.

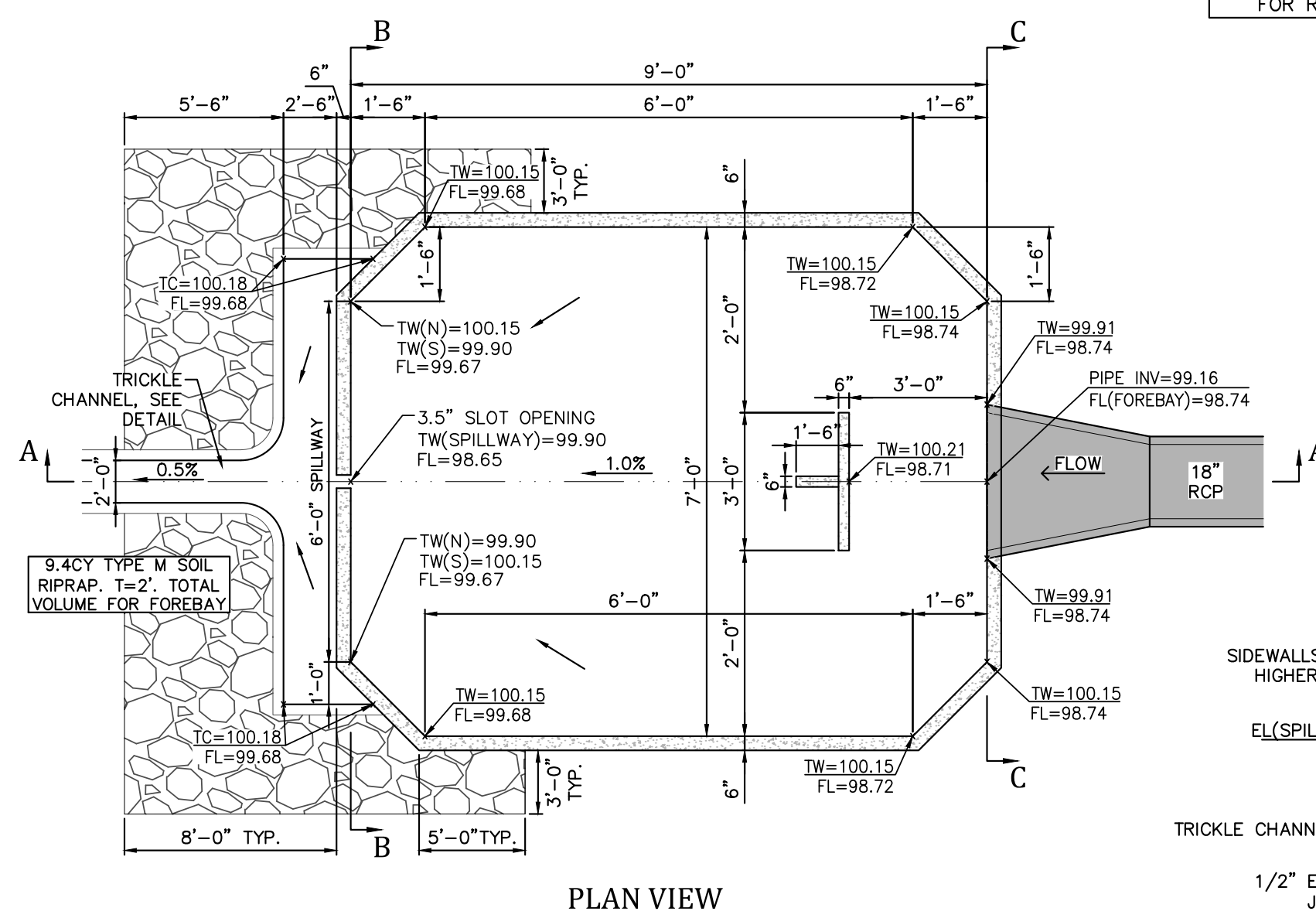
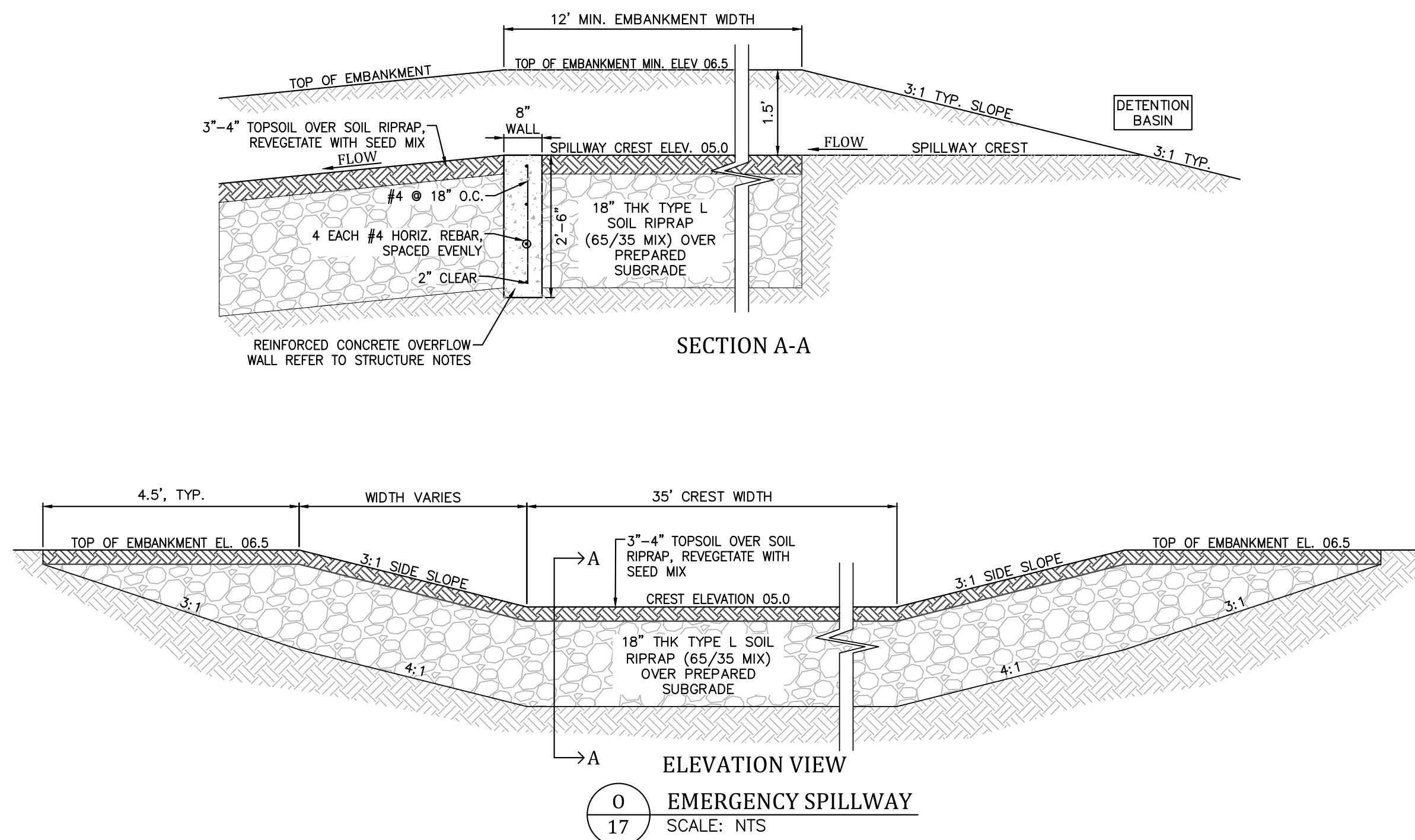


R NORTH PRESEDIMENTATION FOREBAY
SCALE: NTS

NOTES:
1. REFER TO "STRUCTURE NOTES"
FOR REQUIREMENTS.

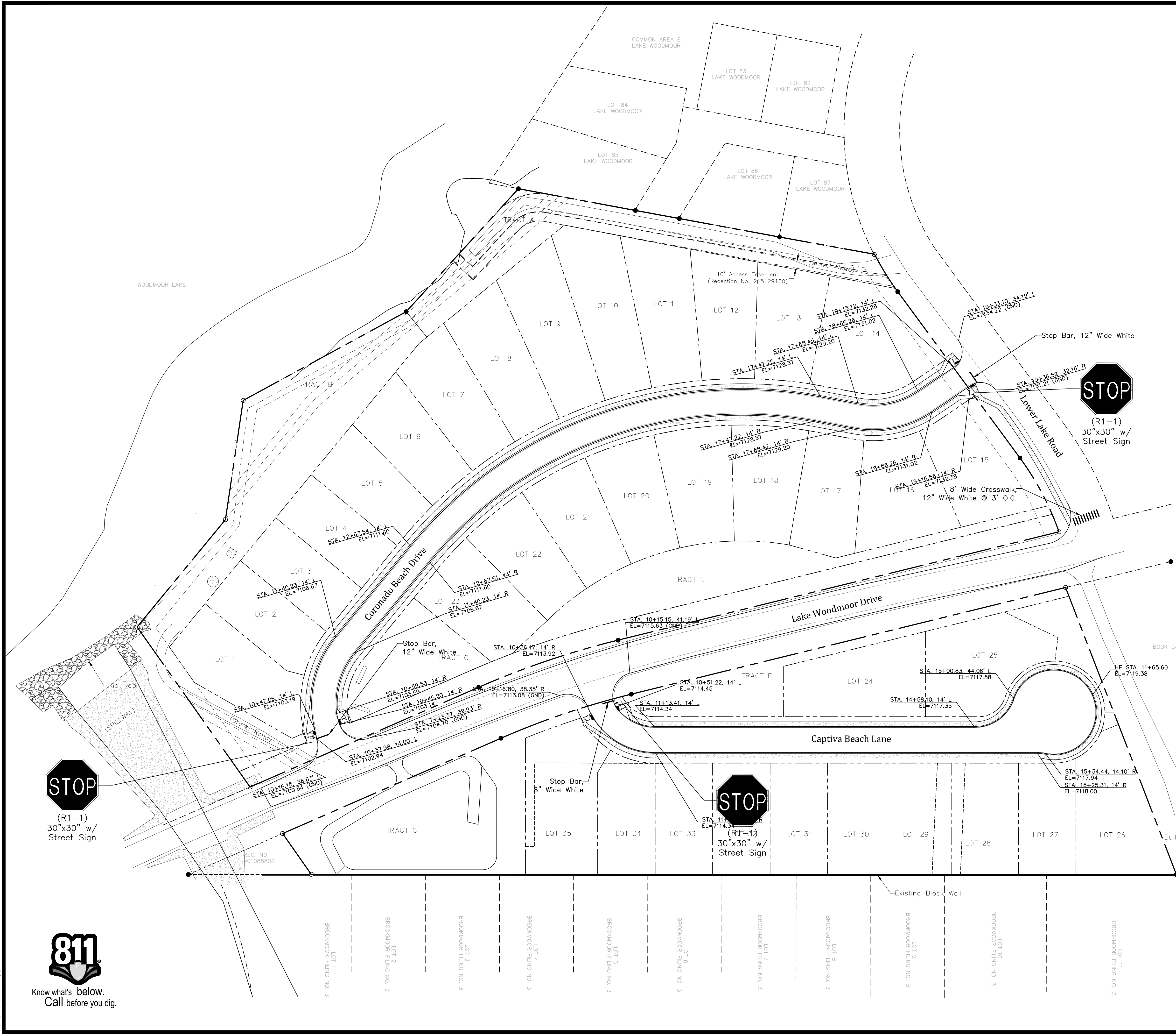


S EAST PRESEDIMENTATION FOREBAY
SCALE: NTS



NOTES:
1. REFER TO "STRUCTURE NOTES"
FOR REQUIREMENTS.





1. Before excavating, contractor shall verify location of underground utilities.
2. Contractor shall be responsible for any monumentation and/or benchmarks which will be disturbed or destroyed by construction. Such points shall be referenced and replaced with appropriate monumentation by a registered professional authorized to practice land surveying.
3. Approval of these plans by the County does not authorize any work to be performed until a permit has been issued.
4. The approval of these plans or issuance of a permit by El Paso County does not authorize the contractor, subdivider, or owner to violate any Federal, State, or City laws, ordinances, regulations, or policies.
5. The contractor shall be responsible for all new, temporary and existing traffic signs from the start of the construction project until acceptance by El Paso County.
6. All traffic signs, pavement, and traffic signals shall meet or exceed M.U.T.C.D. Standards.
7. The contractor shall not remove any existing signs, pavement markings or traffic signals during the project without authorization of the Engineering Inspector assigned to the project.
8. The contractor shall prepare a detailed Traffic Control Plan, submit to El Paso County for approval, and obtain appropriate permits.
9. The contractor shall be responsible for all work zone traffic control. The contractor shall be responsible for furnishing, installing and maintaining the temporary traffic control devices throughout the duration of the project.

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.

