

MARKSHEFFEL CONNECTOR

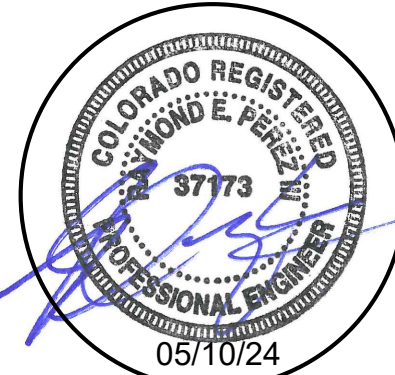
16IN HIGH PRESSURE GAS MAIN

GRADING, EROSION AND STORMWATER QUALITY CONTROL PLAN

Please add Construction Drawings to the document title
"Construction Drawings and Grading, Erosion, and Stormwater Quality Control Plan"



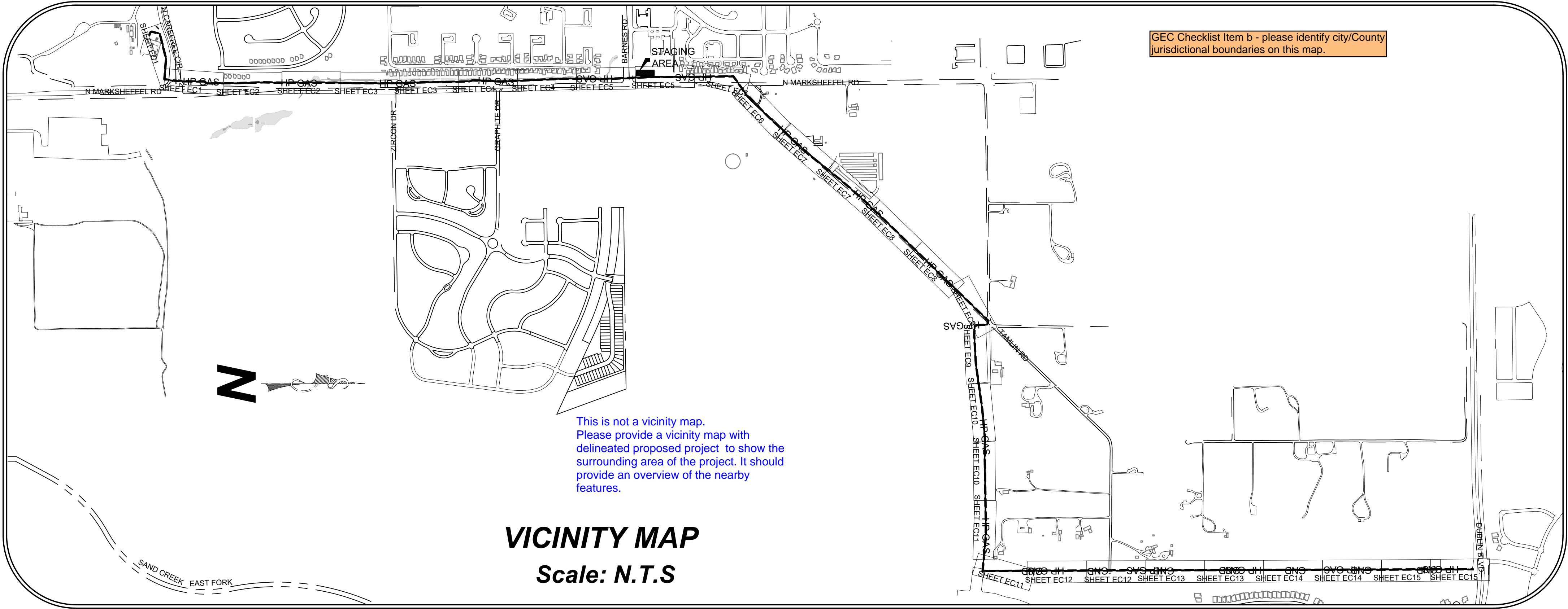
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(719) 291-2744

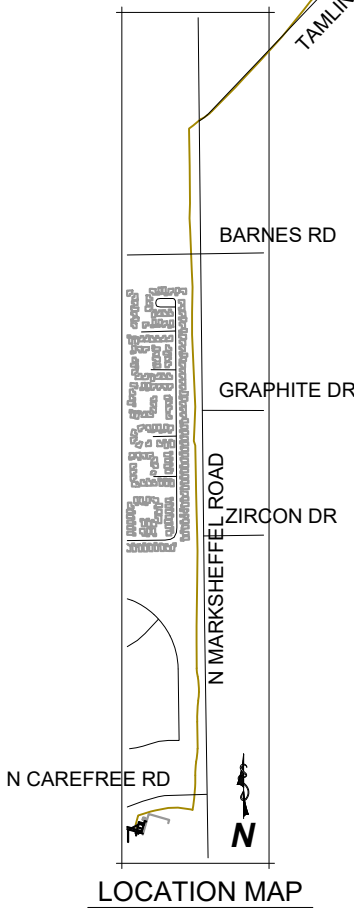
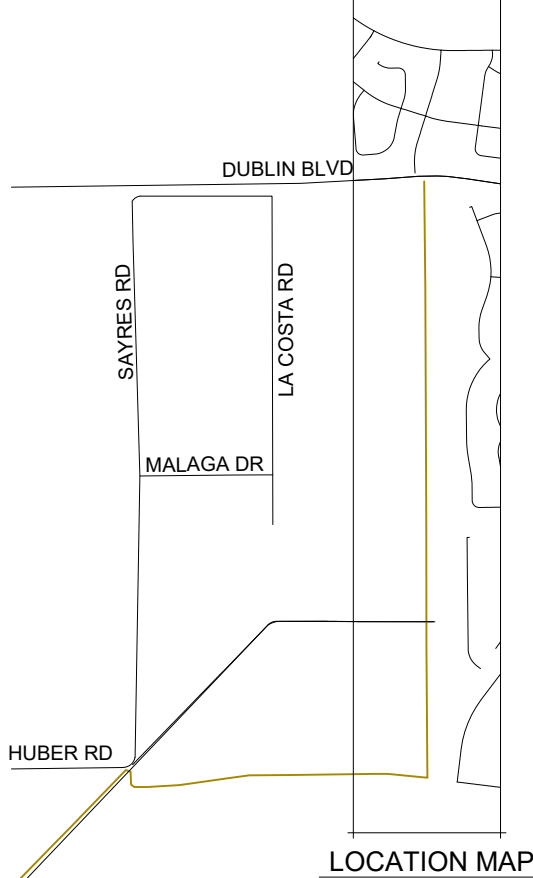
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SHEET INDEX	
TS1	COVERSHEET
GN1	GENERAL NOTES
EC1-EC15	EROSION CONTROL PLANS
DT1-DT2	EROSION CONTROL DETAILS



MARKSHEFFEL CONNECTOR

PROJECT SITE



SITE MAP

Scale: N.T.S.

OWNER'S STATEMENT:

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

OWNER SIGNATURE: Mark Muñoz
NAME OF OWNER: Mark Muñoz
EMAIL: mmunoz@csu.org

DATE: 05/22/2024
PHONE: 719-668-2862

ENGINEER'S STATEMENT:

Please use GEC Checklist Item ff signature block.

THIS GRADING AND EROSION CONTROL PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. IF SUCH WORK IS PERFORMED IN ACCORDANCE WITH THE GRADING AND EROSION CONTROL PLAN, THE WORK WILL NOT BECOME A HAZARD TO LIFE AND LIMB, ENDANGER PROPERTY, OR ADVERSELY AFFECT THE SAFETY, USE, OR STABILITY OF A PUBLIC WAY, DRAINAGE CHANNEL, OR OTHER PROPERTY.

PRINTED NAME: RAYMOND E. PEREZ III, P.E.
PHONE NUMBER: (719) 291-2744

DATE: MAY 10, 2024



CONTRACTOR'S STATEMENT:

I WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN INCLUDING TEMPORARY CONTROL MEASURE INSPECTION REQUIREMENTS AND FINAL STABILIZATION REQUIREMENTS. I ACKNOWLEDGE THE RESPONSIBILITY TO DETERMINE WHETHER THE CONSTRUCTION ACTIVITIES ON THESE PLANS REQUIRE COLORADO DISCHARGE PERMIT SYSTEM (CDPS) PERMITTING FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY.

NAME OF CONTRACTOR: Miller Pipeline, LLC

AUTHORIZED SIGNATURE: Randy Hielt

DATE: 05/22/24

TITLE: Randy Hielt - General Manager

PHONE NUMBER: 719-325-9984

ADDRESS: 3170 Capital Dr. - Colorado Springs, CO 80939

EMAIL ADDRESS: Randy.Hielt@millerpipeline.com

OWNER/APPLICANT:
COLORADO SPRINGS CITY OF
PO BOX 1575 MAIL CODE 455
COLORADO SPRINGS, COLORADO

PROPERTY ADDRESS:
7713 NORTH CAREFREE CIRCLE
COLORADO SPRINGS, CO

TOTAL AREA TO BE DISTURBED:
20 ACRES

FOR THE COUNTY ENGINEER _____ DATE _____

NOTES:

G E S C P L A N
MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

◆ TITLE SHEET

Issued 05/10/24

TS1
sheet number

PRC Engineering
1685 W. Uintah St., Suite 114
Colorado Springs, CO 80904
719.291.2744

Date
Project

5/13/2024
Mark Sheffel Connector

Engineer's Opinion of Probable Construction Costs

Description	Quantity	Units	Unit Cost		Total
GRADING AND EROSION CONTROL (Construction and Permanent BMPs)					
* Earthwork					
less than 1,000; \$5,300 min		CY	\$ 8.00	=	\$ -
1,000-5,000; \$8,000 min		CY	\$ 6.00	=	\$ -
5,001-20,000; \$30,000 min		CY	\$ 5.00	=	\$ -
20,001-50,000; \$100,000 min		CY	\$ 3.50	=	\$ -
50,001-200,000; \$175,000 min		CY	\$ 2.50	=	\$ -
greater than 200,000; \$500,000 min		CY	\$ 2.00	=	\$ -
* Permanent Seeding (inc. noxious weed mgmnt.)		AC	\$ 800.00	=	\$ -
* Mulching		AC	\$ 750.00	=	\$ -
* Permanent Erosion Control Blanket		SY	\$ 6.00	=	\$ -
* Permanent Pond/BMP Construction		CY	\$ 20.00	=	\$ -
* Permanent Pond/BMP (Spillway)		EA		=	\$ -
* Permanent Pond/BMP (Outlet Structure)		EA		=	\$ -
Safety Fence		LF	\$ 3.00	=	\$ -
Temporary Erosion Control Blanket		SY	\$ 3.00	=	\$ -
Vehicle Tracking Control	1	EA	\$ 1,325.00	=	\$ 1,325.00
Silt Fence	14,775	LF	\$ 2.50	=	\$ 36,937.50
Temporary Seeding	3.84	AC	\$ 525.00	=	\$ 2,016.00
Temporary Mulch		AC	\$ 750.00	=	\$ -
Erosion Bales		EA	\$ 25.00	=	\$ -
Erosion Logs/Straw Waddle		LF	\$ 5.00	=	\$ -
Rock Sock	300	LF	\$ 15.00	=	\$ 4,500.00
Inlet Protection		EA	\$ 110.00	=	\$ -
Sediment Basin		EA	\$ 1,762.00	=	\$ -
Concrete Washout Basin	1	EA	\$ 760.00	=	\$ 760.00
Stabilized Staging Area	1,650	SY	\$ 3.75	=	\$ 6,187.50
Stockpile Management	50	CY	\$ 9.25	=	\$ 462.50
				=	\$ -
MAINTENANCE (40% of Construction BMPs)				=	\$ 20,875.40
Total				=	\$ 73,063.90



Page 1

GENERAL NOTES:

- ACCORDING TO FEMA FLOOD INSURANCE RATE MAP 08041C0727F AND 08041C0514F EFFECTIVE MARCH 17, 1997, THERE IS NO FLOODPLAIN WITHIN THE PROJECT LIMITS.
- STOCKPILE AND TEMPORARY DISPOSAL AREA LOCATIONS WILL BE DETERMINED BY CONTRACTOR.
- STABILIZED STAGING AREA SHOWN ON VICINITY MAP (SEE TITLE SHEET) AND TO BE IDENTIFIED ON THESE PLANS BY THE CONTRACTOR, IF RELOCATED.
- PROPOSED TOPOGRAPHY IS EQUAL TO EXISTING TOPOGRAPHY.
- ADJACENT PROPERTIES ARE NOT ANTICIPATED TO BE AFFECTED BY THIS CONSTRUCTION.
- NO GEOLOGIC HAZARD STUDY REVIEW WAS COMPLETED TO DETERMINE THERE ARE NO AREAS IDENTIFIED AS "NO-BUILD AREAS".

TIMING ANTICIPATED STARTING AND COMPLETION TIME PERIOD OF SITE GRADING:

START: 06/01/24
END: 05/30/25

EXPECTED DATE ON WHICH THE FINAL STABILIZATION WILL BE COMPLETE:

08/30/25

TOTAL AREA OF THE SITE TO BE CLEARED, EXCAVATED OR GRADED:

TOTAL PROJECT AREA: 40 ACRES
TOTAL AREA TO BE DISTURBED: 20 ACRES

NAME OF RECEIVING WATERS:
SAND CREEK VIA CITY OF COLORADO SPRINGS STORM SEWER SYSTEM

SOILS INFORMATION:
TRUCKTON SANDY LOAM ,3 TO 9 PERCENT SLOPES
HYDROLOGIC SOIL GROUP: A

BLAKELAND LOAMY SAND, 1 TO 3 PERCENT SLOPES
HYDROLOGIC SOIL GROUP: A

BLEDON SANDY LOAM, 0 TO 3 PERCENT SLOPES
HYDROLOGIC SOIL GROUP: B

GEC Checklist Item i - Add note describing vegetation on site and percent cover.
SWMP Checklist Item 17f - show location of asphalt/conc batch plants or add a note that none are proposed.

STANDARD EL PASO GESC NOTES:

- 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 RITERIA MANUAL VOLUME 2. ANY DEVIATIONS FROM REGULATIONS AND STANDARDS MUST BE REQUESTED, AND APPROVED, IN WRITING.
- A SEPARATE STORMWATER MANAGEMENT PLAN (SMWP) FOR THIS PROJECT SHALL BE COMPLETED AND AN EROSION AND STORMWATER QUALITY CONTROL PERMIT (ESQCP) ISSUED PRIOR TO COMMENCING CONSTRUCTION. MANAGEMENT OF THE SWMP DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE DESIGNATED QUALIFIED STORMWATER MANAGER OR CERTIFIED EROSION CONTROL INSPECTOR. THE SWMP SHALL BE LOCATED ON-SITE AT ALL TIMES DURING CONSTRUCTION AND SHALL BE KEPT UP TO DATE WITH WORK PROGRESS AND CHANGES IN THE FIELD.
- ONCE THE ESQCP IS APPROVED AND A "NOTICE TO PROCEED" HAS BEEN ISSUED, THE CONTRACTOR MAY INSTALL THE INITIAL STAGE EROSION AND SEDIMENT CONTROL MEASURES AS INDICATED ON THE APPROVED GEC. 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 STAFF.
- CONTROL MEASURES MUST BE INSTALLED PRIOR TO COMMENCEMENT OF ACTIVITIES THAT COULD CONTRIBUTE POLLUTANTS TO STORMWATER. CONTROL MEASURES FOR ALL SLOPES, CHANNELS, DITCHES, AND DISTURBED LAND AREAS SHALL BE INSTALLED IMMEDIATELY UPON COMPLETION OF THE DISTURBANCE.
- ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE MAINTAINED AND REMAIN IN EFFECTIVE OPERATING CONDITION UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND FINAL STABILIZATION IS ESTABLISHED. ALL PERSONS ENGAGED IN LAND DISTURBANCE ACTIVITIES SHALL ASSESS THE ADEQUACY OF CONTROL MEASURES AT THE SITE AND IDENTIFY IF CHANGES TO THOSE CONTROL MEASURES ARE NEEDED TO ENSURE THE CONTINUED EFFECTIVE PERFORMANCE OF THE CONTROL MEASURES. ALL CHANGES TO TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE INCORPORATED INTO THE STORMWATER MANAGEMENT PLAN.
- TEMPORARY STABILIZATION SHALL BE IMPLEMENTED ON DISTURBED AREAS AND STOCKPILES WHERE GROUND DISTURBING CONSTRUCTION ACTIVITY HAS PERMANENTLY CEASED OR TEMPORARILY CEASED FOR LONGER THAN 14 DAYS.
- FINAL STABILIZATION MUST BE IMPLEMENTED AT ALL APPLICABLE CONSTRUCTION SITES. FINAL STABILIZATION IS ACHIEVED WHEN ALL GROUND DISTURBING ACTIVITIES ARE COMPLETE AND ALL DISTURBED AREAS EITHER HAVE A UNIFORM VEGETATIVE COVER WITH INDIVIDUAL PLANT DENSITY OF 70 PERCENT OF PRE-DISTURBANCE LEVELS ESTABLISHED OR EQUIVALENT PERMANENT ALTERNATIVE STABILIZATION METHOD IS IMPLEMENTED. ALL TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED UPON FINAL STABILIZATION AND BEFORE PERMIT CLOSURE.
- ALL PERMANENT STORMWATER MANAGEMENT FACILITIES SHALL BE INSTALLED AS DESIGNED IN THE APPROVED PLANS. ANY PROPOSED CHANGES THAT EFFECT THE DESIGN OR FUNCTION OF PERMANENT STORMWATER MANAGEMENT STRUCTURES MUST BE APPROVED BY THE ECM ADMINISTRATOR PRIOR TO IMPLEMENTATION.
- EARTH DISTURBANCES SHALL BE CONDUCTED IN SUCH A MANNER SO AS TO EFFECTIVELY MINIMIZE 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. PRE-EXISTING VEGETATION SHALL BE PROTECTED AND MAINTAINED WITHIN 50 HORIZONTAL FEET OF A WATERS OF THE STATE UNLESS SHOWN TO BE INFEASIBLE AND SPECIFICALLY REQUESTED AND APPROVED.
- COMPACTION OF SOIL MUST BE PREVENTED IN AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES OR WHERE FINAL STABILIZATION WILL BE ACHIEVED BY VEGETATIVE COVER. AREAS DESIGNATED FOR INFILTRATION CONTROL MEASURES SHALL ALSO BE PROTECTED FROM SEDIMENTATION DURING CONSTRUCTION UNTIL FINAL STABILIZATION IS ACHIEVED. IF COMPACTION PREVENTION IS NOT FEASIBLE DUE TO SITE CONSTRAINTS, ALL AREAS DESIGNATED FOR INFILTRATION AND VEGETATION CONTROL MEASURES MUST BE LOOSENEED PRIOR TO INSTALLATION OF THE CONTROL MEASURE(S).
- ANY TEMPORARY OR PERMANENT FACILITY DESIGNED AND CONSTRUCTED FOR THE CONVEYANCE OF STORMWATER AROUND, THROUGH, OR FROM THE EARTH DISTURBANCE AREA SHALL BE A STABILIZED CONVEYANCE DESIGNED TO MINIMIZE EROSION AND THE DISCHARGE OF SEDIMENT OFF-SITE.
- CONCRETE WASH WATER SHALL BE CONTAINED AND DISPOSED OF IN ACCORDANCE WITH THE SWMP. NO WASH WATER SHALL BE DISCHARGED TO OR ALLOWED TO ENTER STATE WATERS, INCLUDING ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR FACILITIES. CONCRETE WASHOUTS SHALL NOT BE LOCATED IN AN AREA WHERE SHALLOW GROUNDWATER MAY BE PRESENT, OR WITHIN 50 FEET OF A SURFACE WATER BODY, CREEK OR STREAM.
- DURING DEWATERING OPERATIONS, UNCONTAMINATED GROUNDWATER MAY BE DISCHARGED ON-SITE, BUT SHALL NOT LEAVE THE SITE IN THE FORM OF SURFACE RUNOFF UNLESS AN APPROVED STATE DEWATERING PERMIT IS IN PLACE.
- EROSION CONTROL BLANKETING OR OTHER PROTECTIVE COVERING SHALL BE USED ON SLOPES STEEPER THAN 3:1.
- 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.
- 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. CONTROL MEASURES MAY BE REQUIRED BY EL PASO COUNTY ENGINEERING IF DEEMED NECESSARY, BASED ON SPECIFIC CONDITIONS AND CIRCUMSTANCES.
- TRACKING OF SOILS AND CONSTRUCTION DEBRIS OFF-SITE SHALL BE MINIMIZED. MATERIALS TRACKED OFF-SITE SHALL BE CLEANED UP AND PROPERLY DISPOSED OF IMMEDIATELY.
- THE OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL CONSTRUCTION DEBRIS, DIRT, TRASH, ROCK, SEDIMENT, SOIL, AND SAND THAT MAY ACCUMULATE IN ROADS, STORM DRAINS AND OTHER DRAINAGE CONVEYANCE SYSTEMS AND STORMWATER APPURTENANCES 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 CHEMICAL(S) HAVING THE POTENTIAL TO BE RELEASED IN STORMWATER ARE TO BE STORED OR USED ON-SITE UNLESS PERMISSION FOR THE USE OF SUCH CHEMICAL(S) IS GRANTED IN WRITING BY THE ECM ADMINISTRATOR. IN GRANTING APPROVAL FOR THE USE OF SUCH CHEMICAL(S), SPECIAL CONDITIONS AND MONITORING MAY BE REQUIRED.
- BULK STORAGE OF ALLOWED PETROLEUM PRODUCTS OR OTHER ALLOWED LIQUID CHEMICALS IN EXCESS OF 55 GALLONS SHALL REQUIRE ADEQUATE SECONDARY CONTAINMENT PROTECTION TO CONTAIN ALL SPILLS ON-SITE AND TO PREVENT ANY SPILLED MATERIALS FROM ENTERING STATE WATERS, ANY SURFACE OR SUBSURFACE STORM DRAINAGE SYSTEM OR OTHER FACILITIES.
- NO PERSON SHALL CAUSE THE IMPEDIMENT OF STORMWATER FLOW IN THE CURB AND GUTTER OR DITCH EXCEPT WITH APPROVED SEDIMENT CONTROL MEASURES.
- OWNER/DEVELOPER AND THEIR AGENTS 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 OF THE LAND DEVELOPMENT CODE, DCM VOLUME II AND THE ECM APPENDIX I. ALL APPROPRIATE PERMITS MUST BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION (1041, NPDES, FLOODPLAIN, 404, FUGITIVE DUST, ETC.). IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND OTHER LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, STATE, LOCAL, OR COUNTY AGENCIES, THE MOST RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- ALL CONSTRUCTION TRAFFIC MUST ENTER/EXIT THE SITE ONLY AT APPROVED CONSTRUCTION ACCESS POINTS.
- PRIOR TO CONSTRUCTION THE PERMITTEE SHALL VERIFY THE LOCATION OF EXISTING UTILITIES.
- A WATER SOURCE SHALL BE AVAILABLE ON-SITE DURING EARTHWORK OPERATIONS AND SHALL BE UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
- THE SOILS REPORT FOR THIS SITE HAS BEEN PREPARED BY ERA ENVIRONMENTAL, DATED FEBRUARY 17, 2021 AND SHALL BE CONSIDERED A PART OF THESE PLANS.
- AT LEAST TEN (10) DAYS PRIOR TO THE ANTICIPATED START OF CONSTRUCTION, FOR PROJECTS THAT WILL DISTURB ONE (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 CONTAINS CERTIFICATION 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

Is this really for this project? If not, put N/A.



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G E S C P L A N
MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

◆ TITLE SHEET

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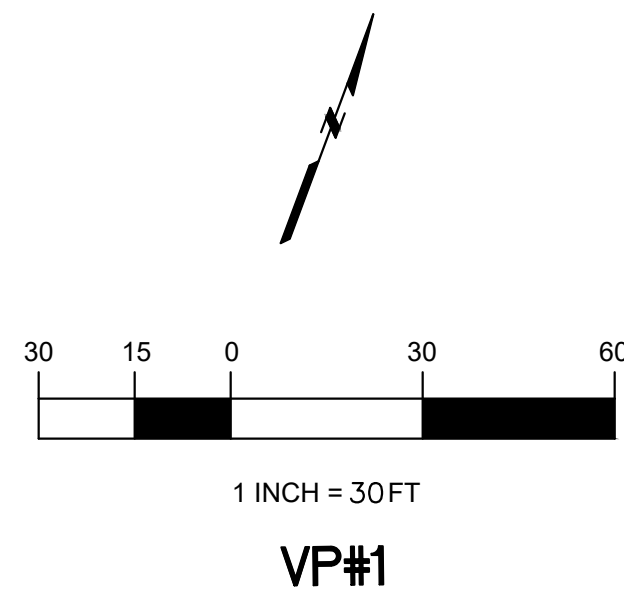
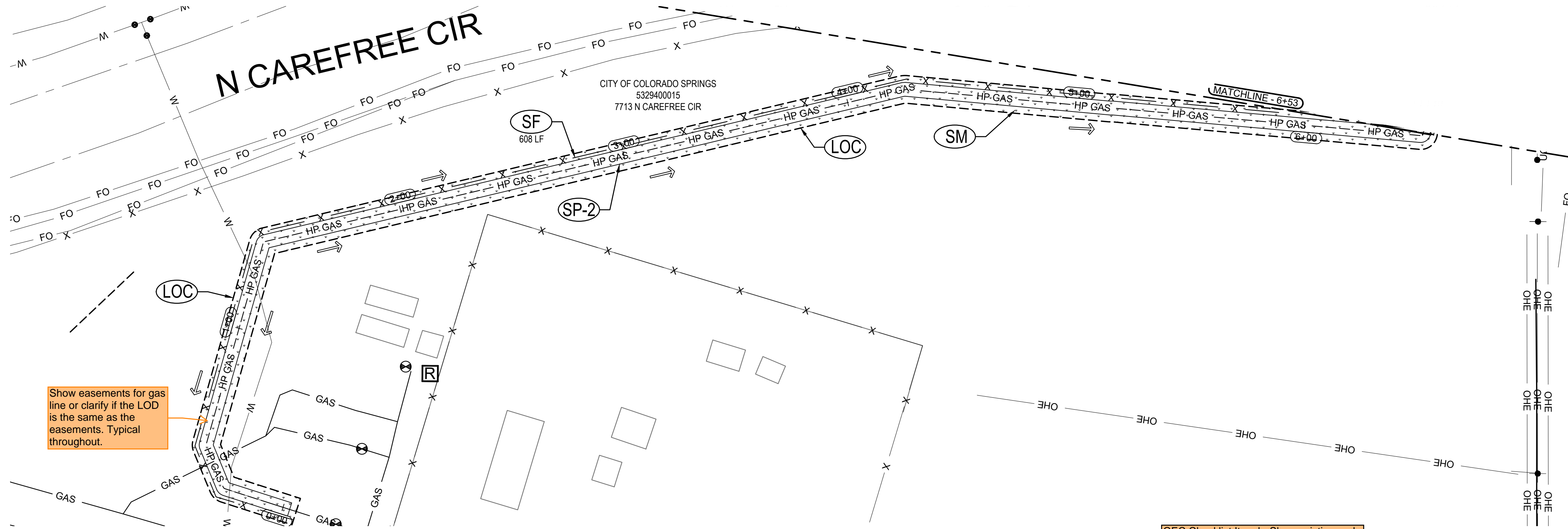
16-IN HIGH PRESSURE GAS MAIN

EL PASO COUNTY, COLORADO

♦ EROSION CONTROL PLAN

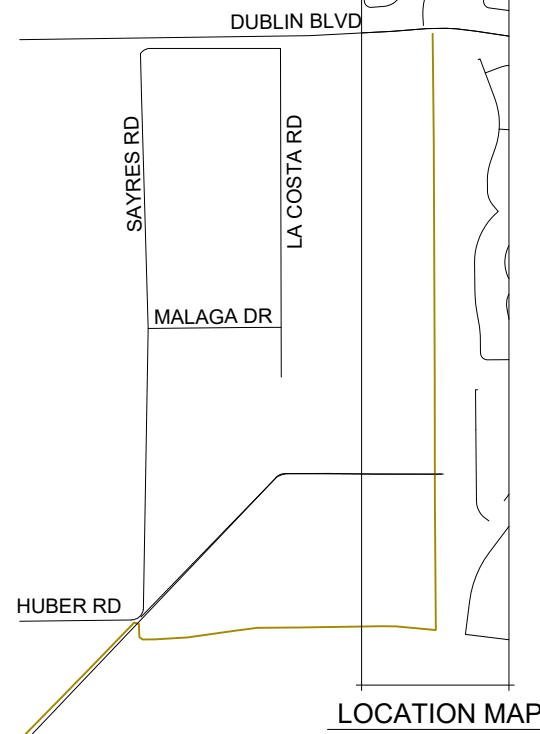
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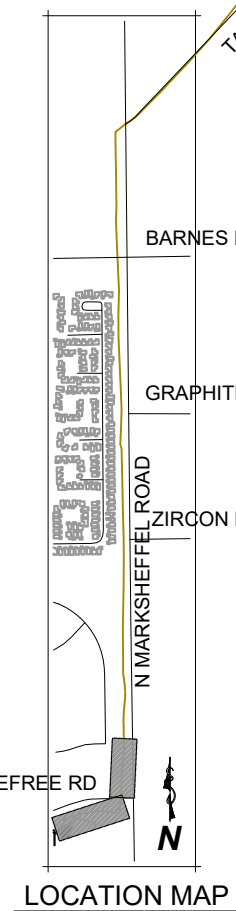
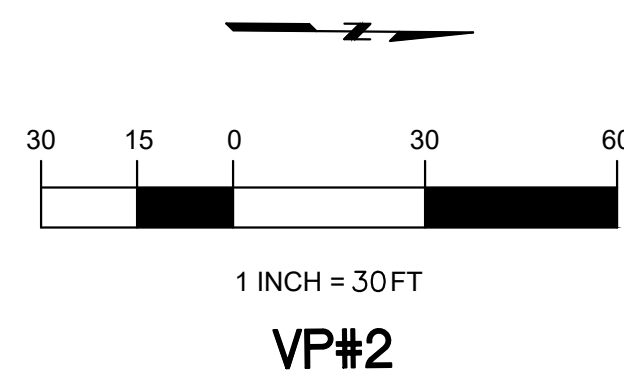
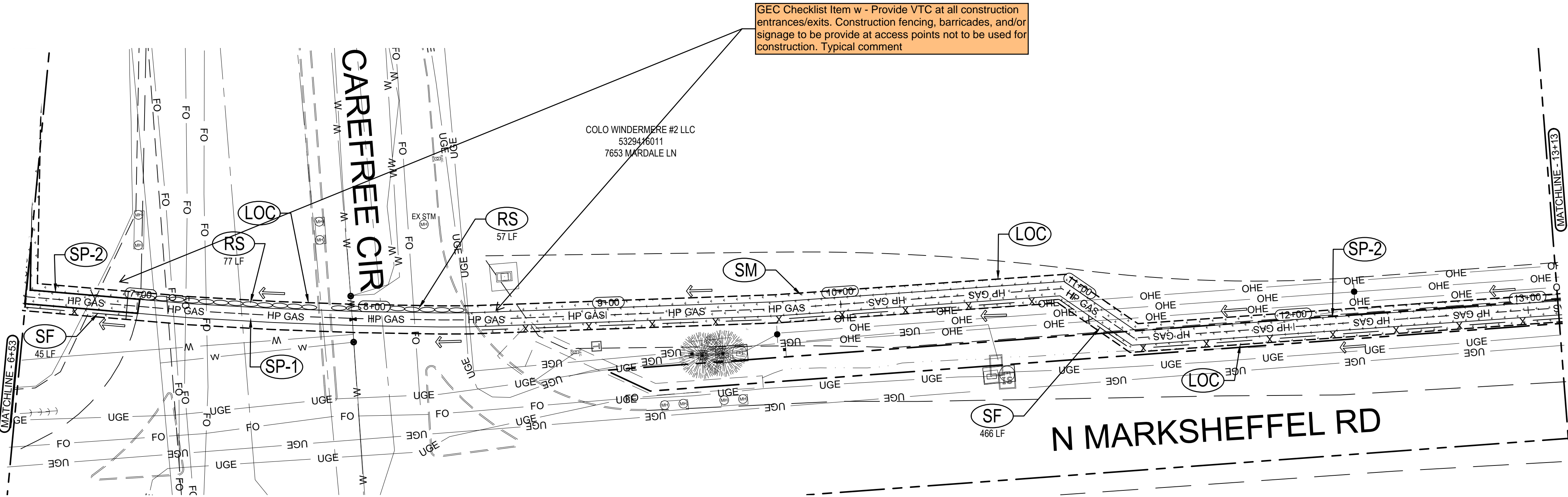


MARKSHEFFEL CONNECTOR

PROJECT SITE



LOCATION MAP

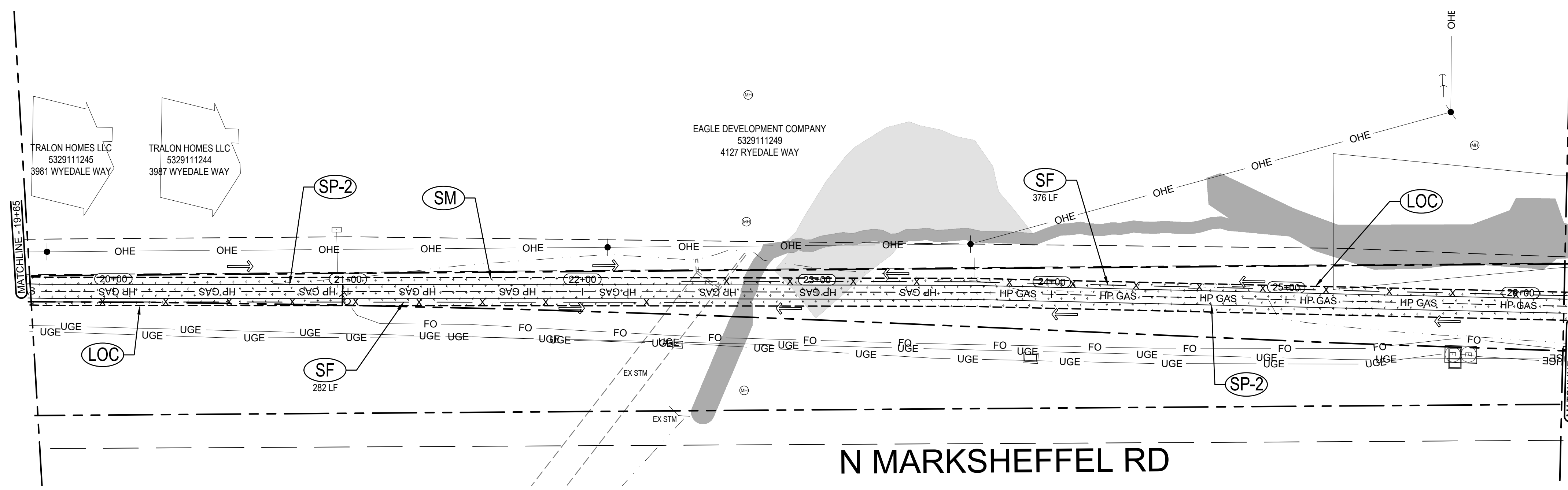
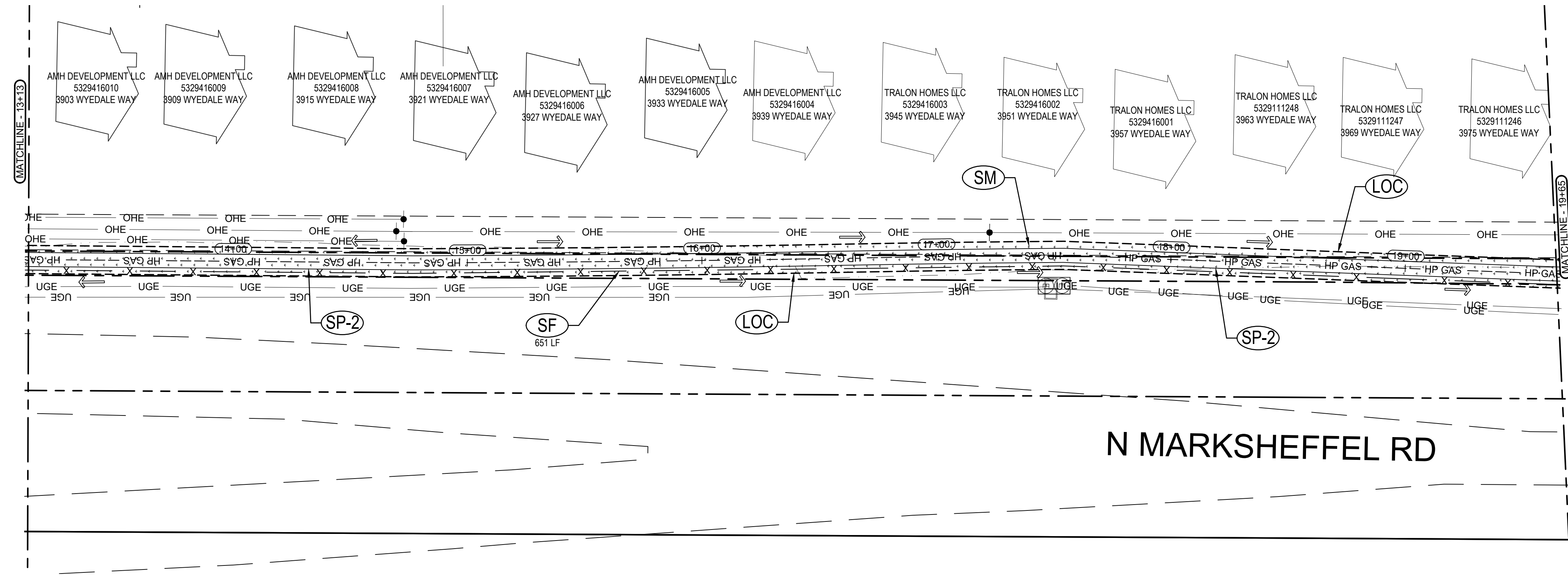


LOCATION MAP

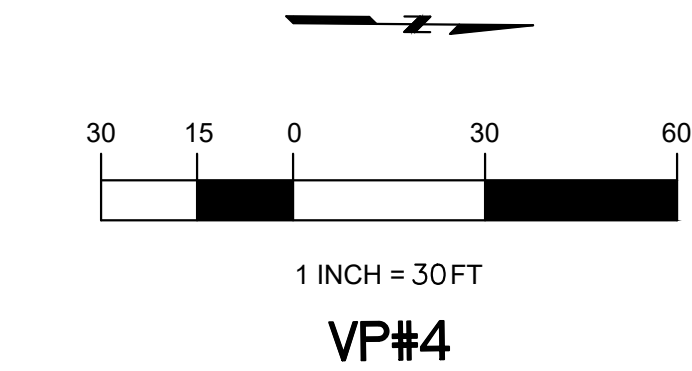
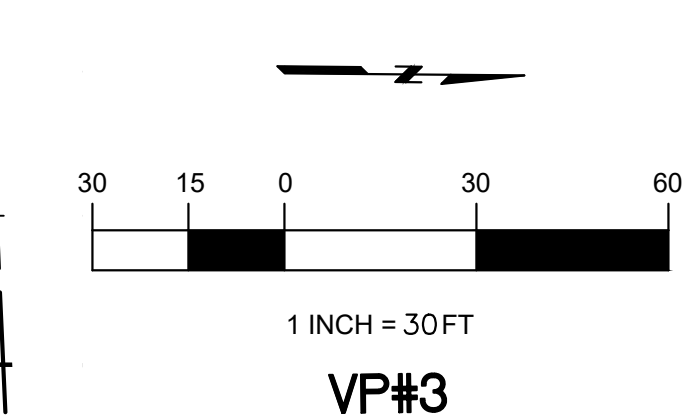
LEGEND			
---	EXISTING ROW/PROPERTY LINE	---	EXISTING SANITARY SEWER
---	EXISTING CURB LINE	---	EXISTING WATER
SM	SEEDING AND MULCHING	SF	SILT FENCE
SP-1 SP-2	MATERIALS STAGING		SOIL DISTURBANCE AREA
RS	ROCK SOCK		EXISTING FLOW DIRECTION
LOC	LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE		
IP	INLET PROTECTION		

Show VTC in legend.

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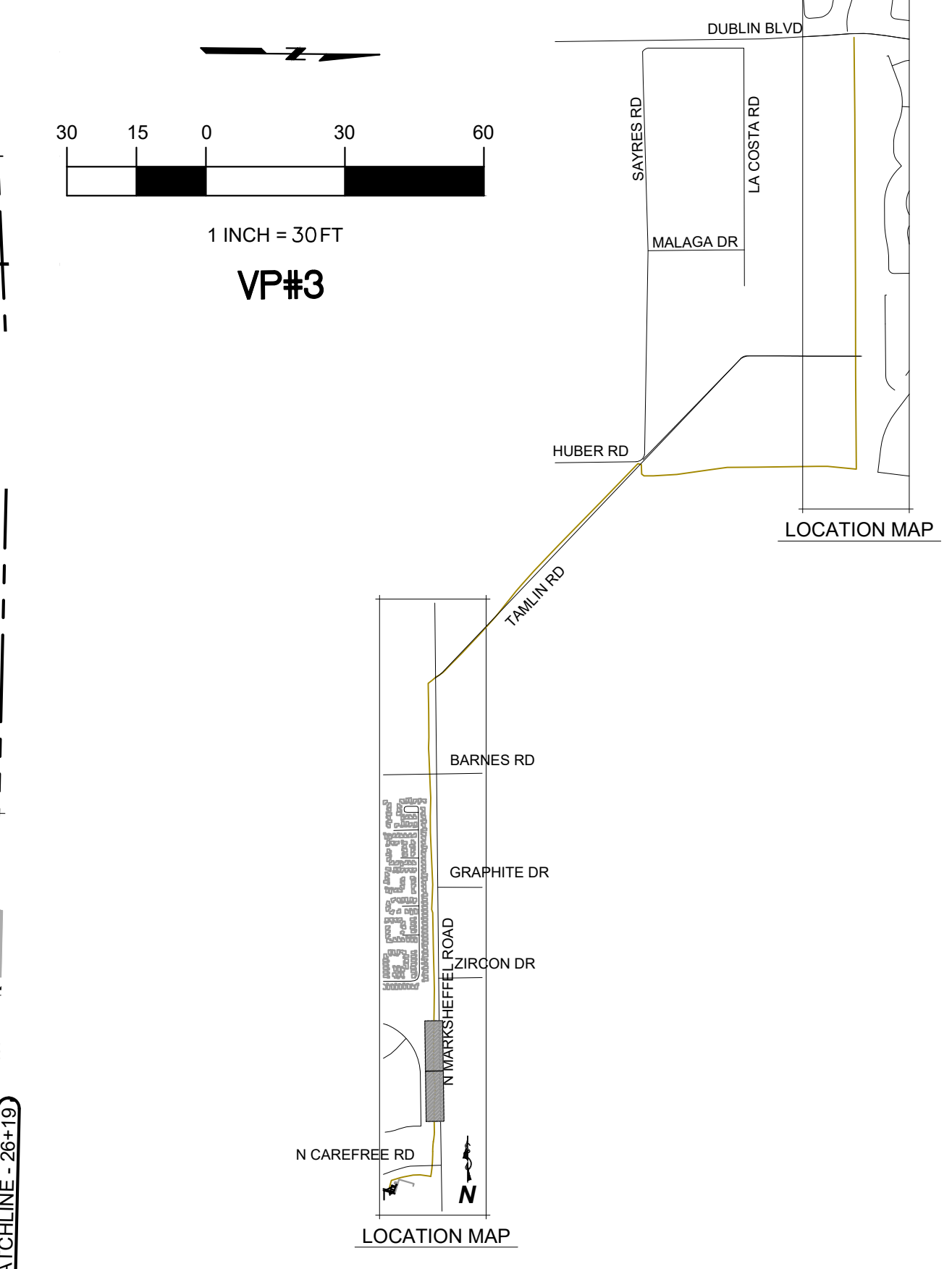


- LEGEND**
- EXISTING ROW/PROPERTY LINE
 - - - EXISTING CURB LINE
 - [SM] SEEDING AND MULCHING
 - [SP-1] [SP-2] MATERIALS STAGING
 - [RS] ROCK SOCK
 - [LOC] LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE
 - [IP] INLET PROTECTION
 - (W) --- EXISTING SANITARY SEWER
 - EXISTING WATER
 - x --- [SF] SILT FENCE
 - [] SOIL DISTURBANCE AREA
 - > EXISTING FLOW DIRECTION



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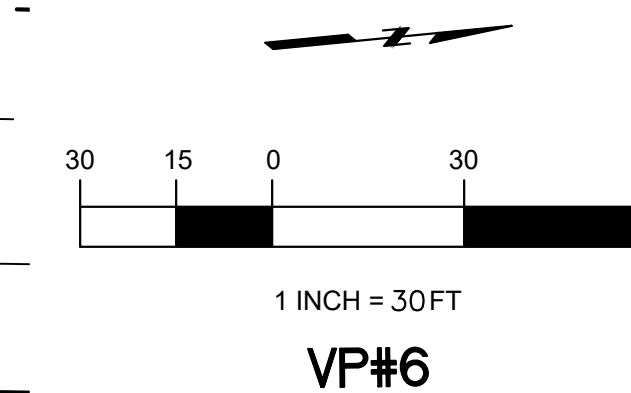
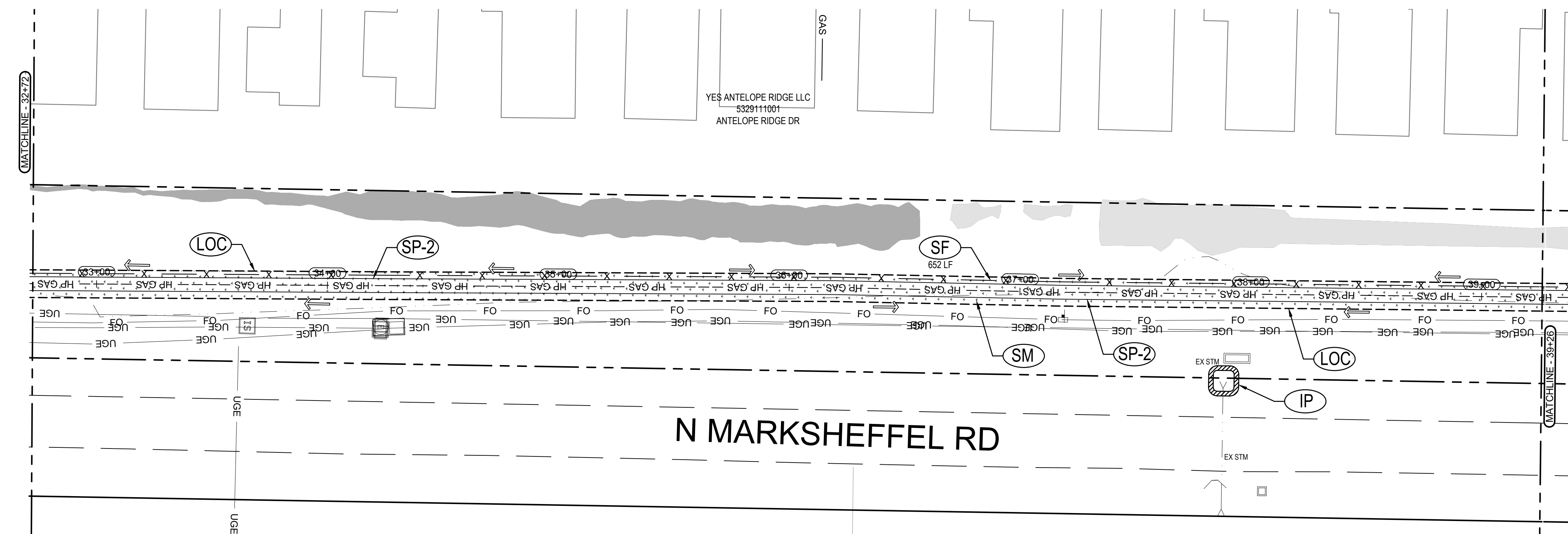
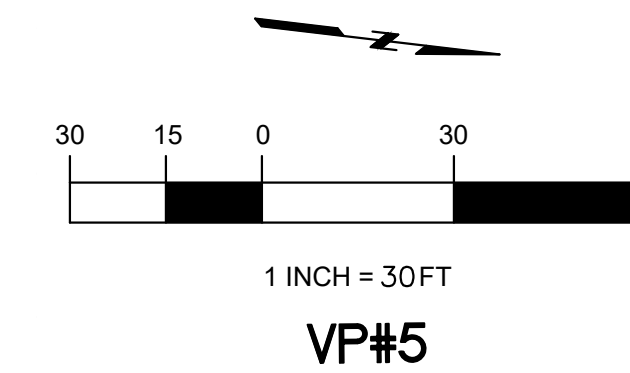
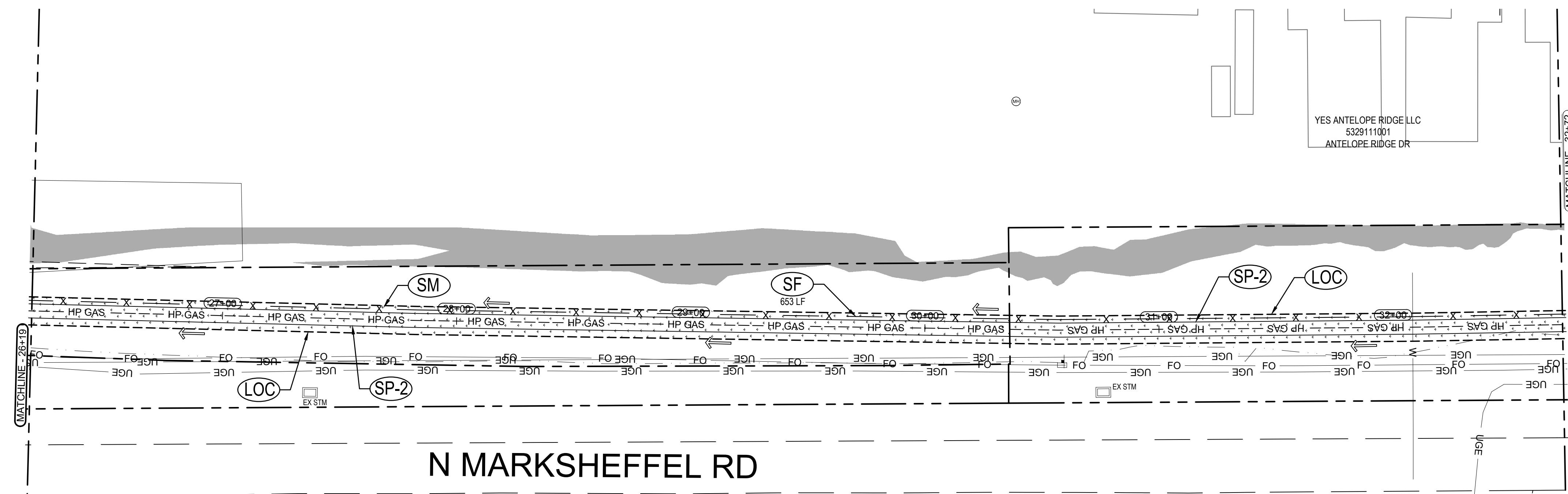


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16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

EROSION CONTROL PLAN

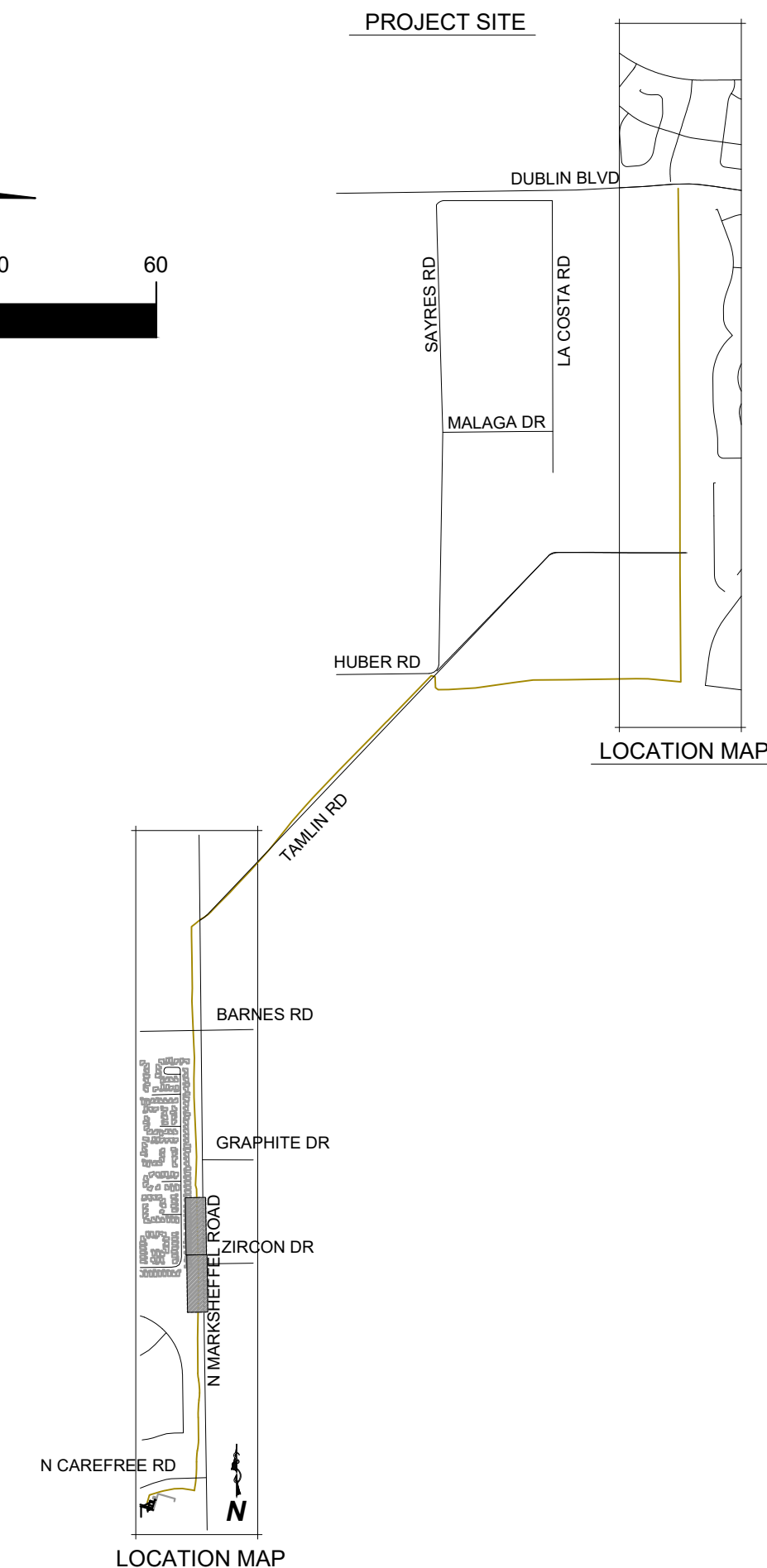
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MARKSHEFFEL CONNECTOR

PROJECT SITE



LEGEND			
	EXISTING ROW/PROPERTY LINE		EXISTING SANITARY SEWER
	EXISTING CURB LINE		EXISTING WATER
	SM SEEDING AND MULCHING		SILT FENCE
	SP-1 MATERIALS STAGING		SOIL DISTURBANCE AREA
	SP-2 MATERIALS STAGING		EXISTING FLOW DIRECTION
	RS ROCK SOCK		
	LOC LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE		
	IP INLET PROTECTION		



Know what's below.
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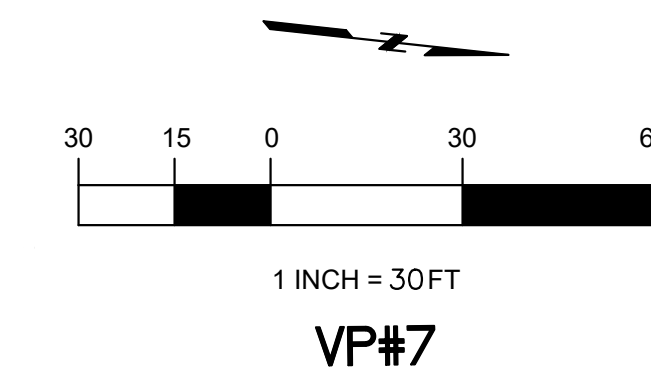
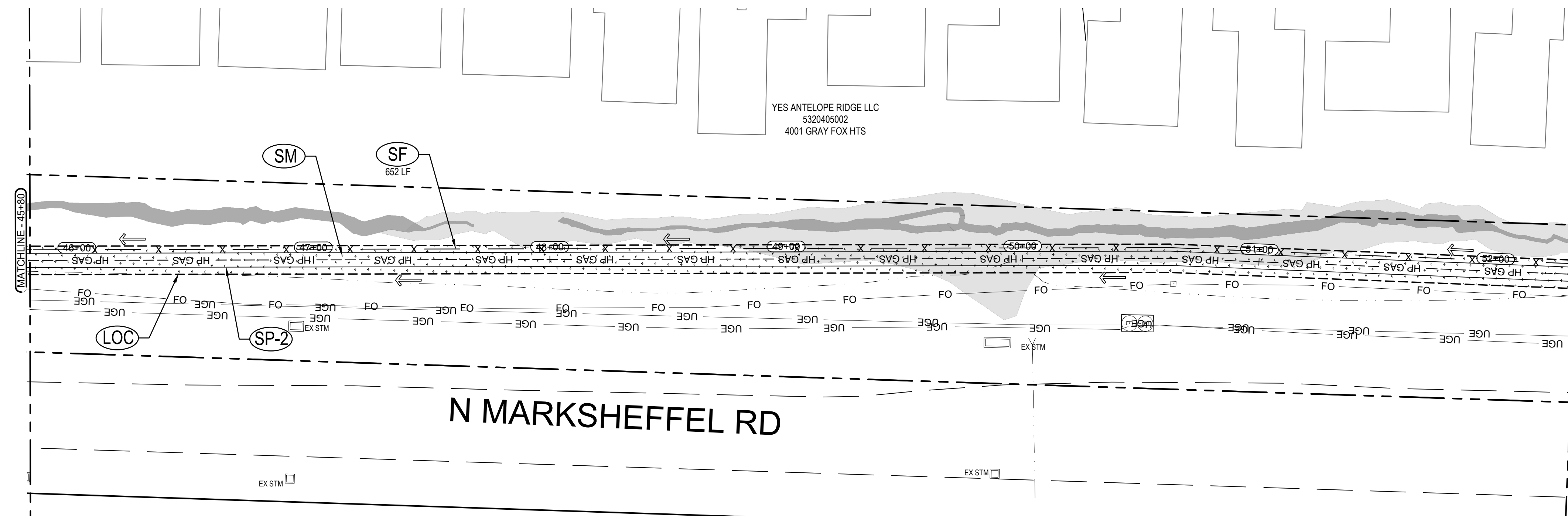
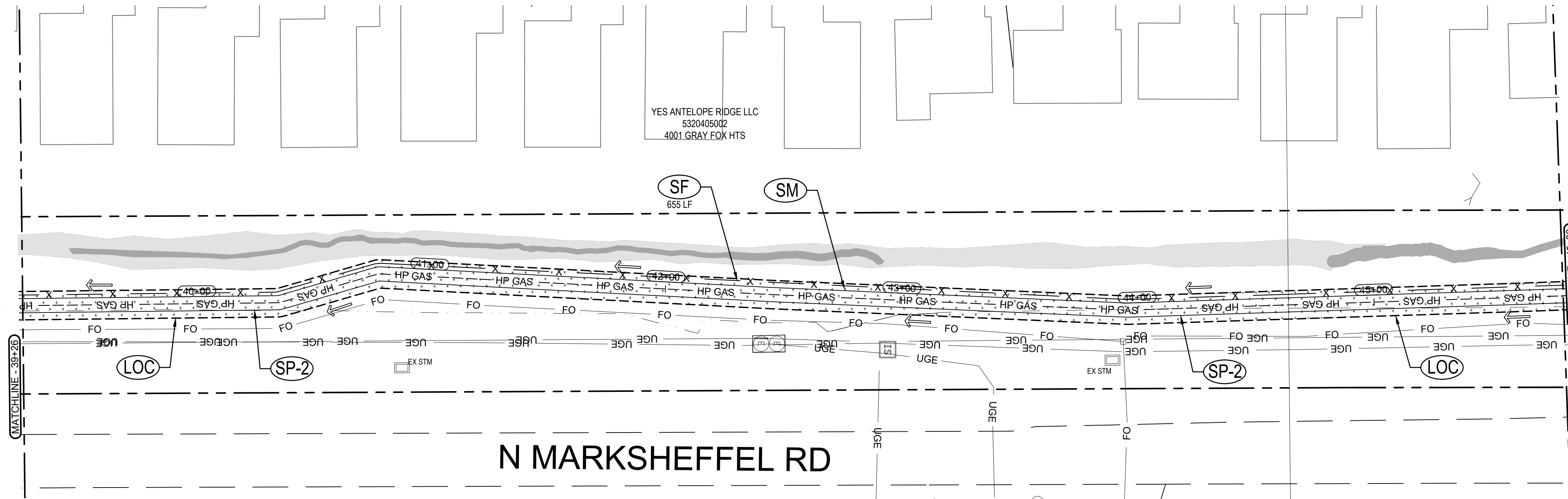
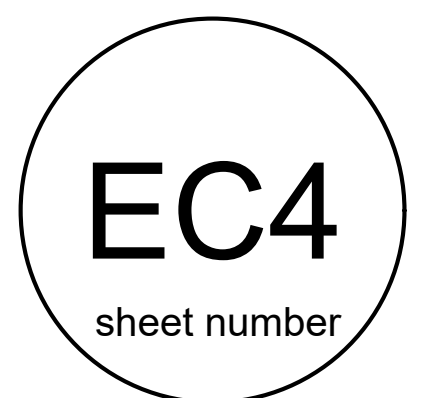
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16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

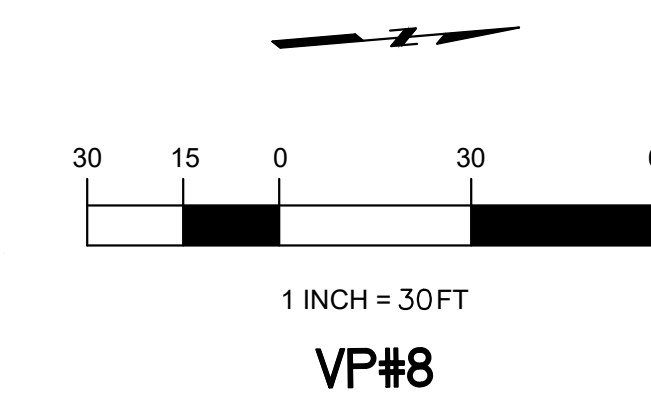
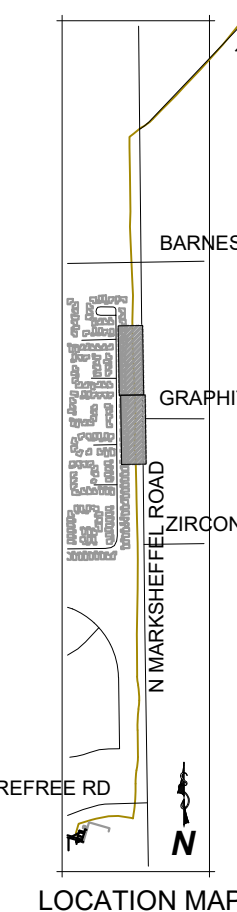
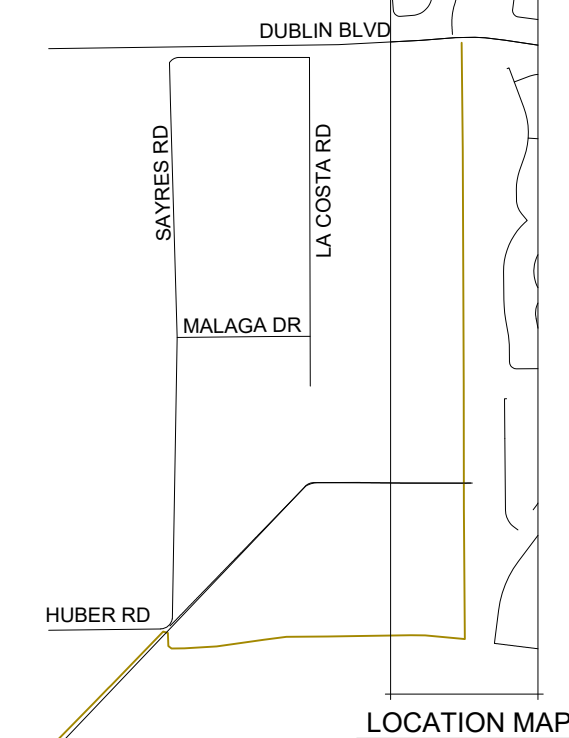
EROSION CONTROL PLAN

issued	05/10/24



MARKSHEFFEL CONNECTOR

PROJECT SITE



---	EXISTING ROW/PROPERTY LINE	---	EXISTING SANITARY SEWER
- - -	EXISTING CURB LINE	---	EXISTING WATER
[Pattern] (SM)	SEEDING AND MULCHING	---	(SF) SILT FENCE
(SP-1) (SP-2)	MATERIALS STAGING	---	(SF) SILT FENCE
(RS)	ROCK SOCK	---	(SF) SILT FENCE
(LOC)	LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE	[Pattern]	SOIL DISTURBANCE AREA
(IP)	INLET PROTECTION	---	EXISTING FLOW DIRECTION



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EL PASO COUNTY, COLORADO

EROSION CONTROL PLAN

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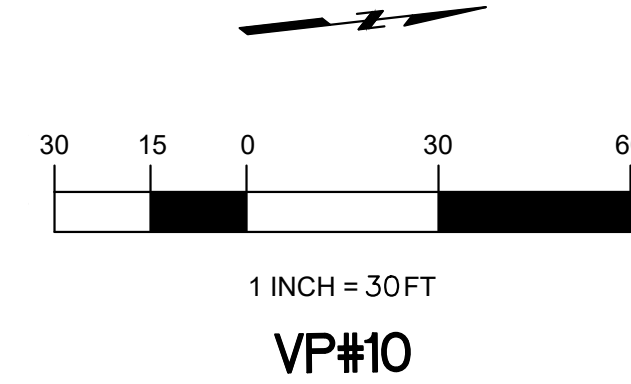
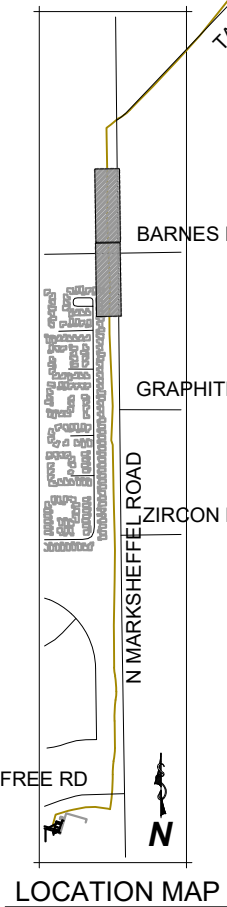
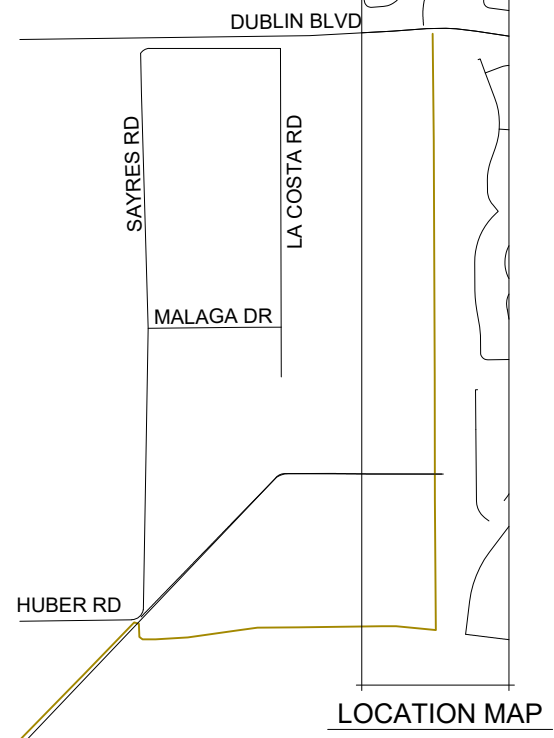
EC5
sheet number

MARKSHEFFEL CONNECTOR

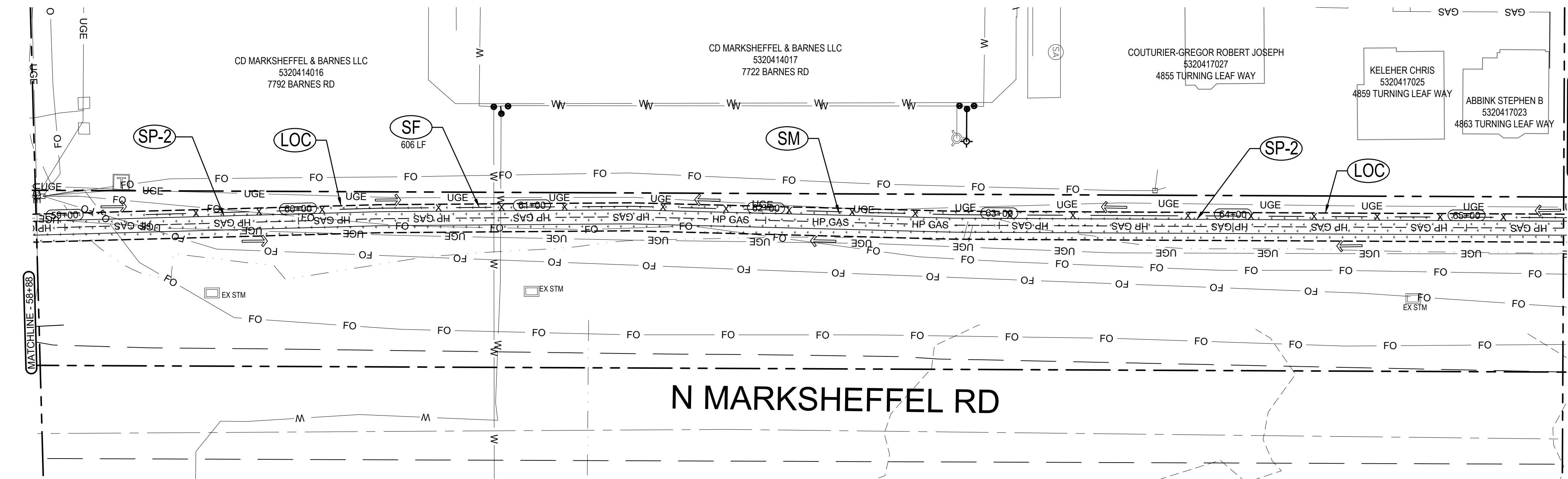
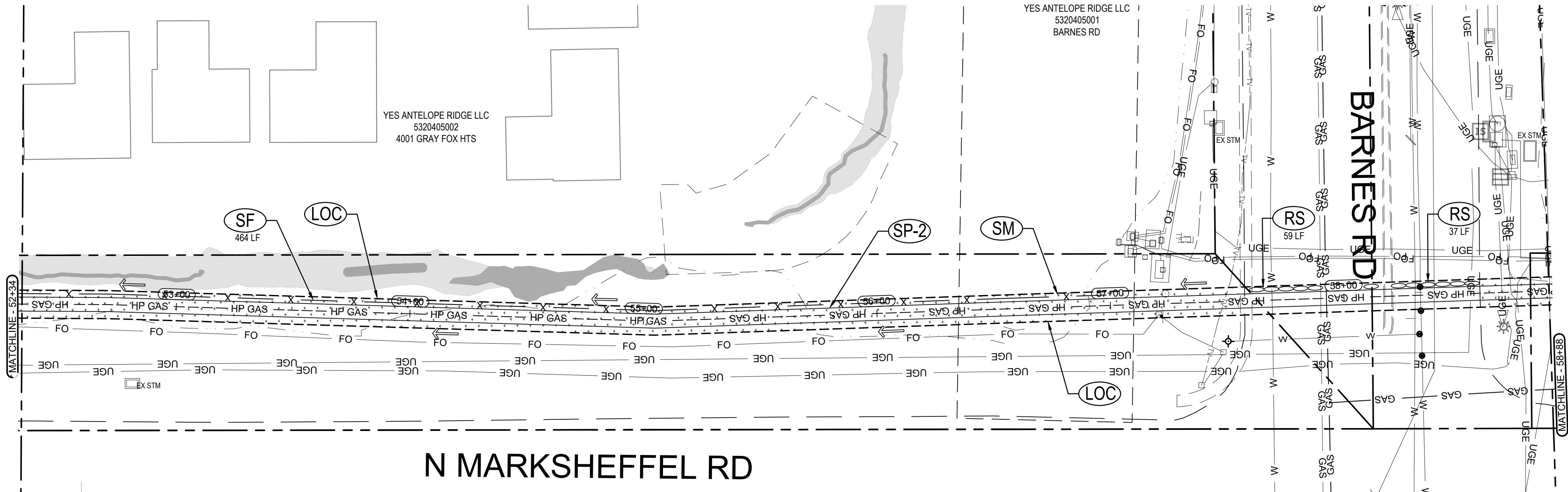
PROJECT SITE



VP#9



VP#10



- LEGEND**
- | | |
|--|-------------------------------------|
| --- EXISTING ROW/PROPERTY LINE | --- (W) --- EXISTING SANITARY SEWER |
| - - - EXISTING CURB LINE | --- EXISTING WATER |
| [Pattern] (SM) SEEDING AND MULCHING | |
| (SP-1) (SP-2) MATERIALS STAGING | |
| (RS) ROCK SOCK | |
| (LOC) LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE | |
| (IP) INLET PROTECTION | |
| [Pattern] (SF) SILT FENCE | |
| [Pattern] SOIL DISTURBANCE AREA | |
| [Arrow] EXISTING FLOW DIRECTION | |



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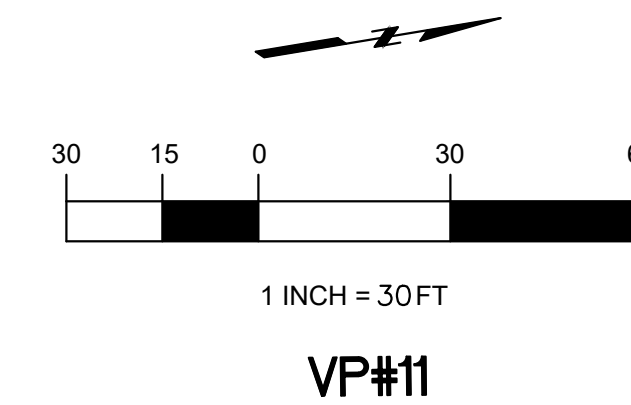
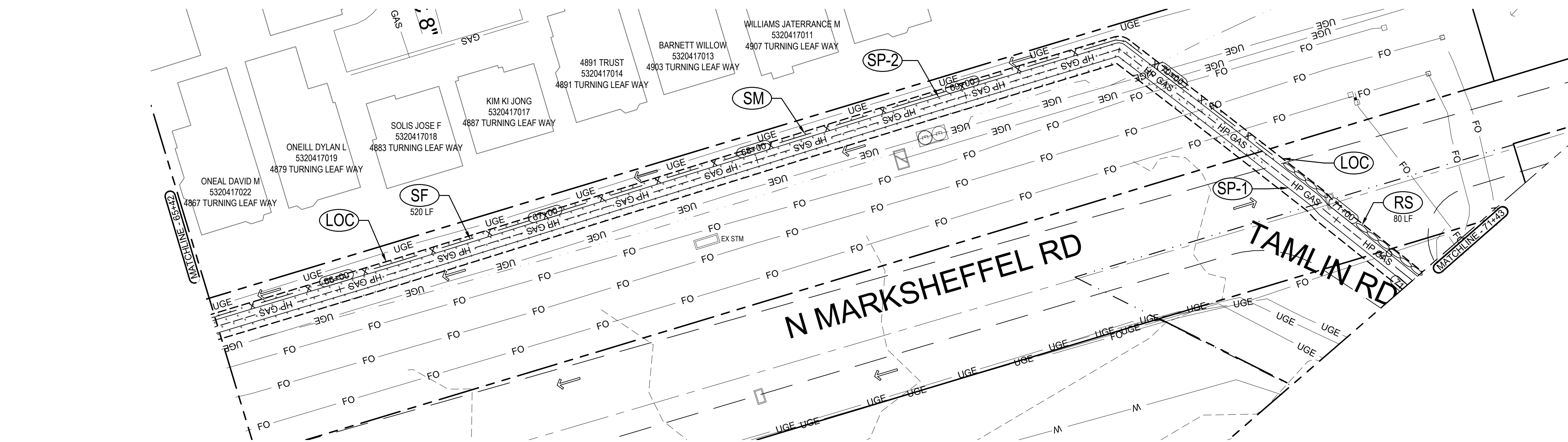


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16-IN HIGH PRESSURE GAS MAIN
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EROSION CONTROL PLAN

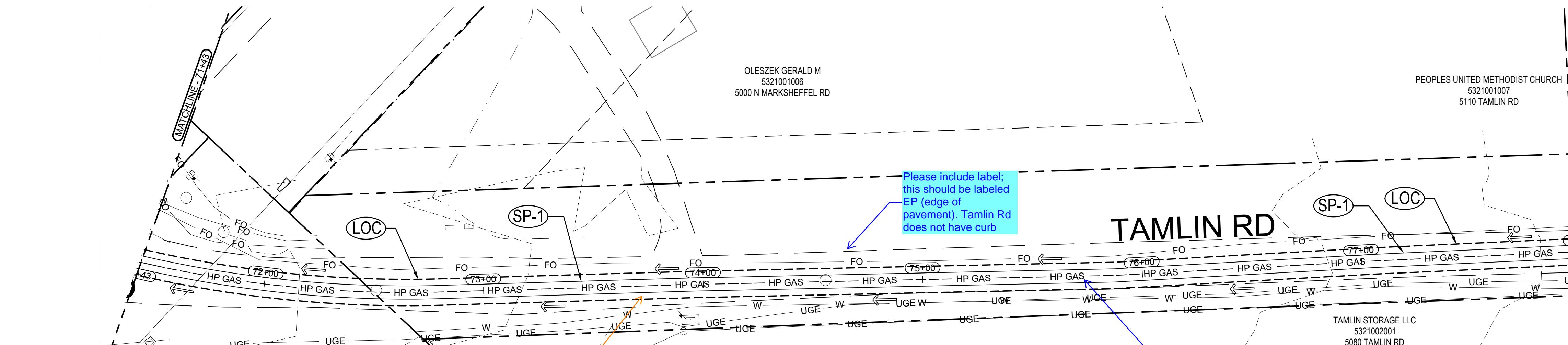
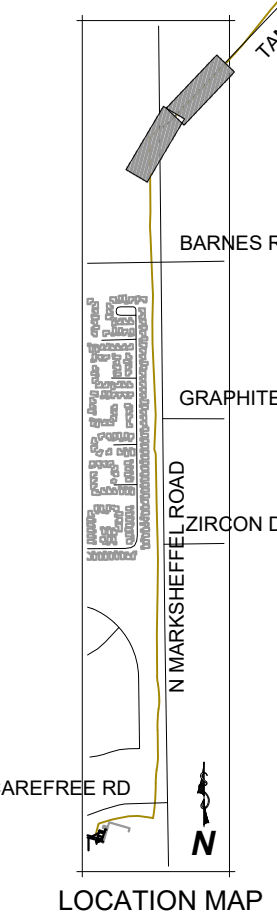
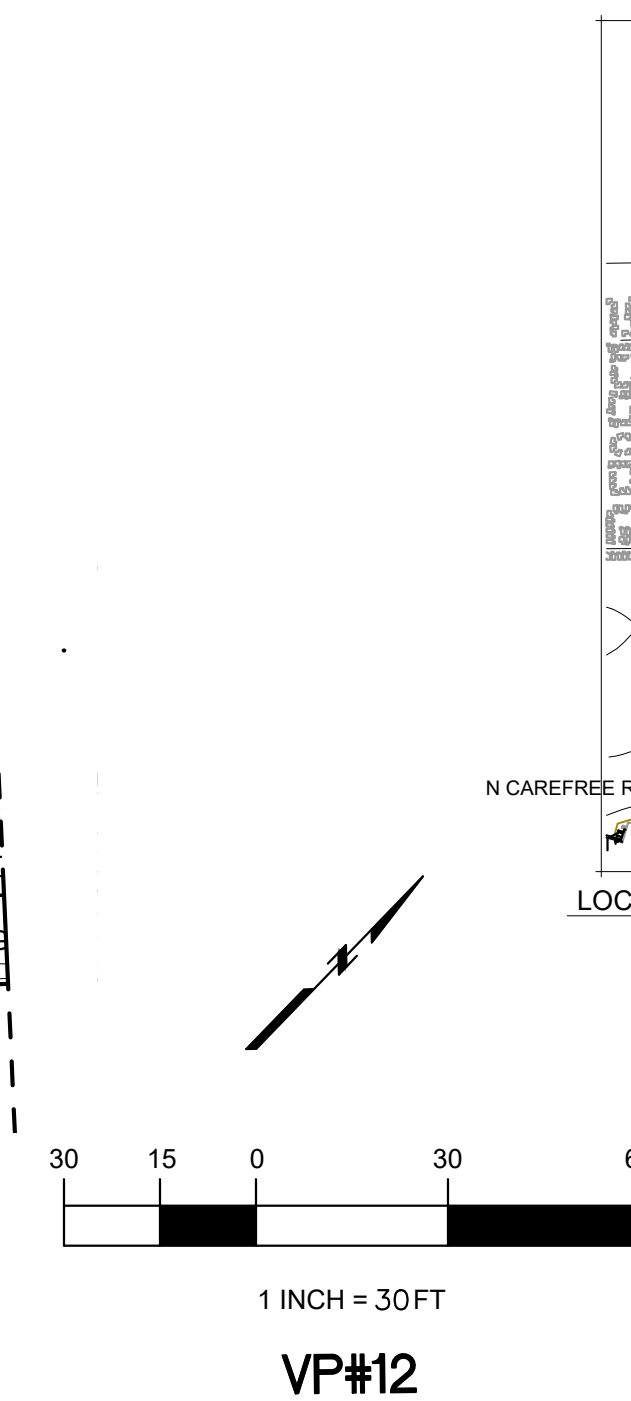
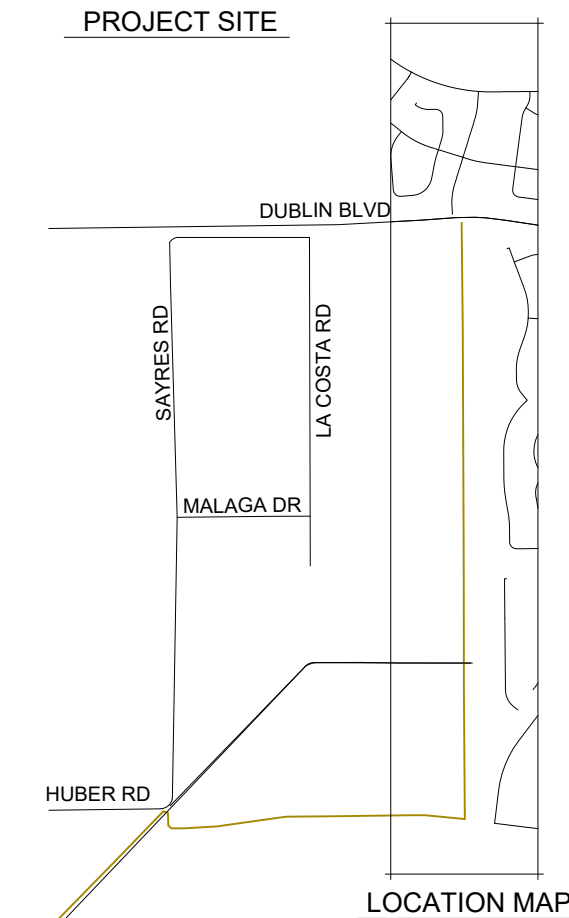
ISSUED 05/10/24

EC6
sheet number



MARKSHEFFEL CONNECTOR

PROJECT SITE



Please include label:
this should be labeled
EP (edge of
pavement). Tamlin Rd
does not have curb

Please label trench /
roadway cut width

Are any other BMPs
required along this
length of utility?
The previous and
next segments of
Tamlin Rd show
Rock Socks as
proposed. This
should generally be
consistent unless
there is a reason for
not providing BMPs

---	EXISTING ROW/PROPERTY LINE	---	EXISTING SANITARY SEWER
- - -	EXISTING CURB LINE	---	EXISTING WATER
[Pattern] (SM)	SEEDING AND MULCHING	- x -	(SF) SILT FENCE
(SP-1) (SP-2)	MATERIALS STAGING	[Box]	SOIL DISTURBANCE AREA
(RS)	ROCK SOCK	[Arrow]	EXISTING FLOW DIRECTION
(LOC)	LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE		
(IP)	INLET PROTECTION		



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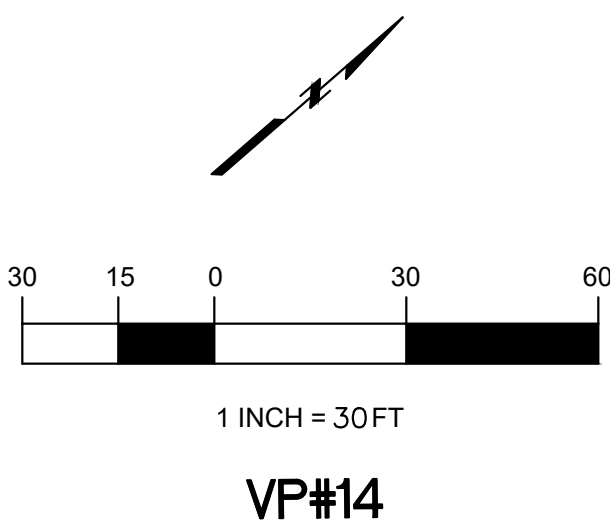
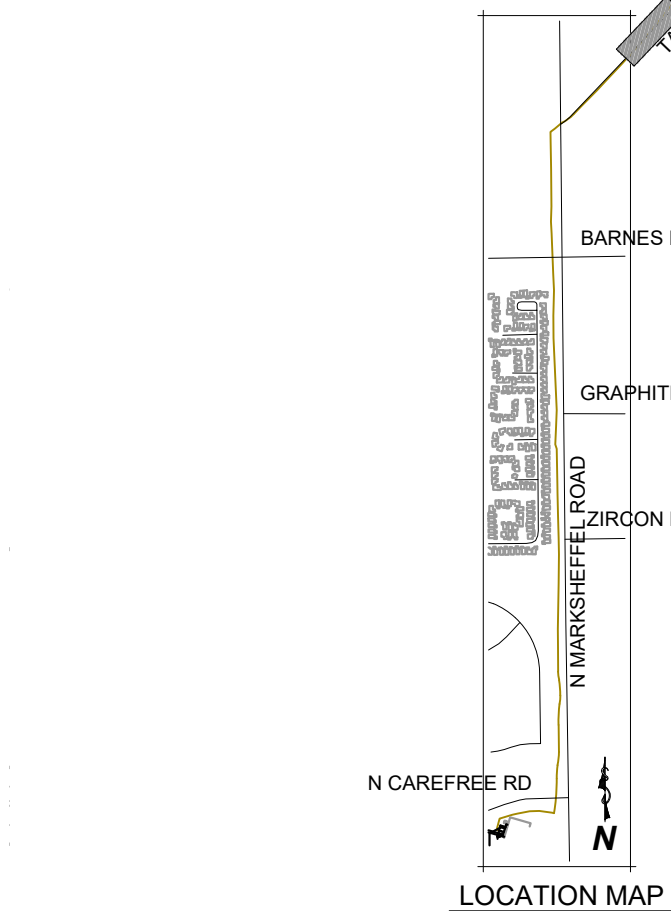
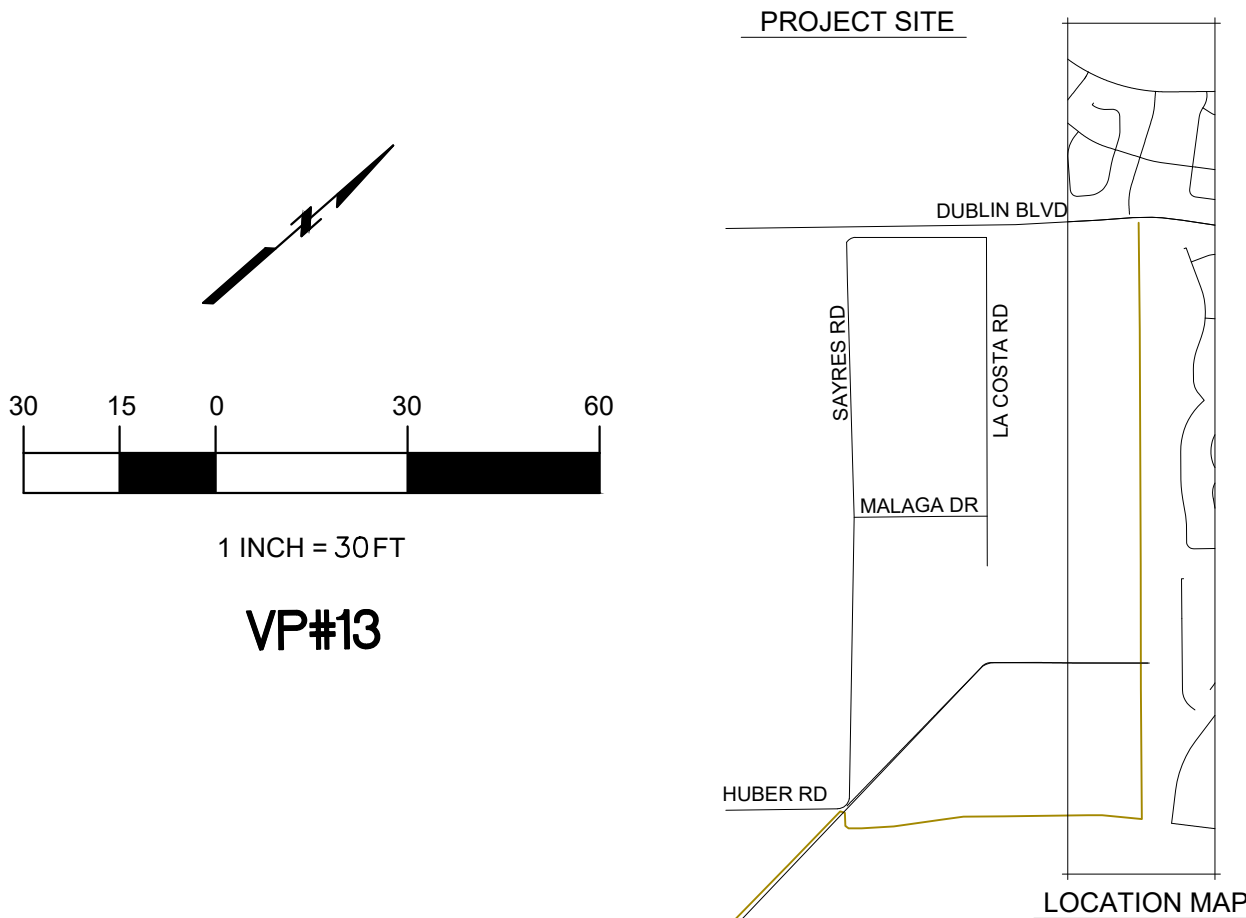
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MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

E R O S I O N C O N T R O L P L A N

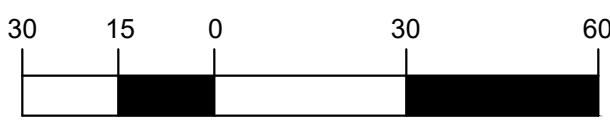
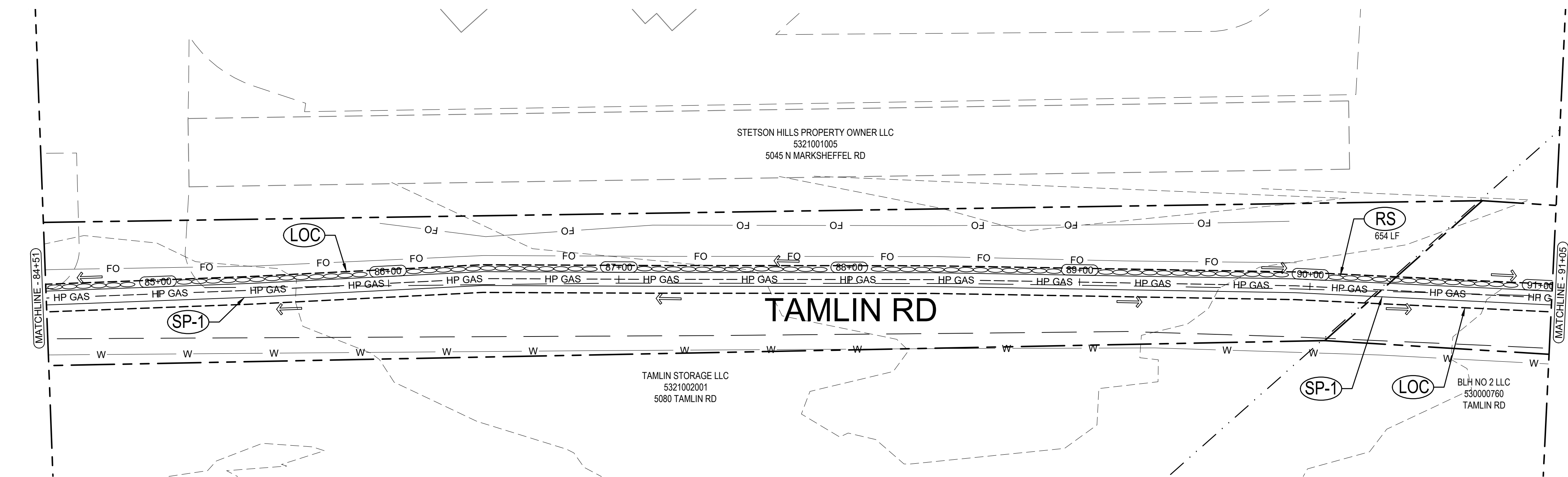
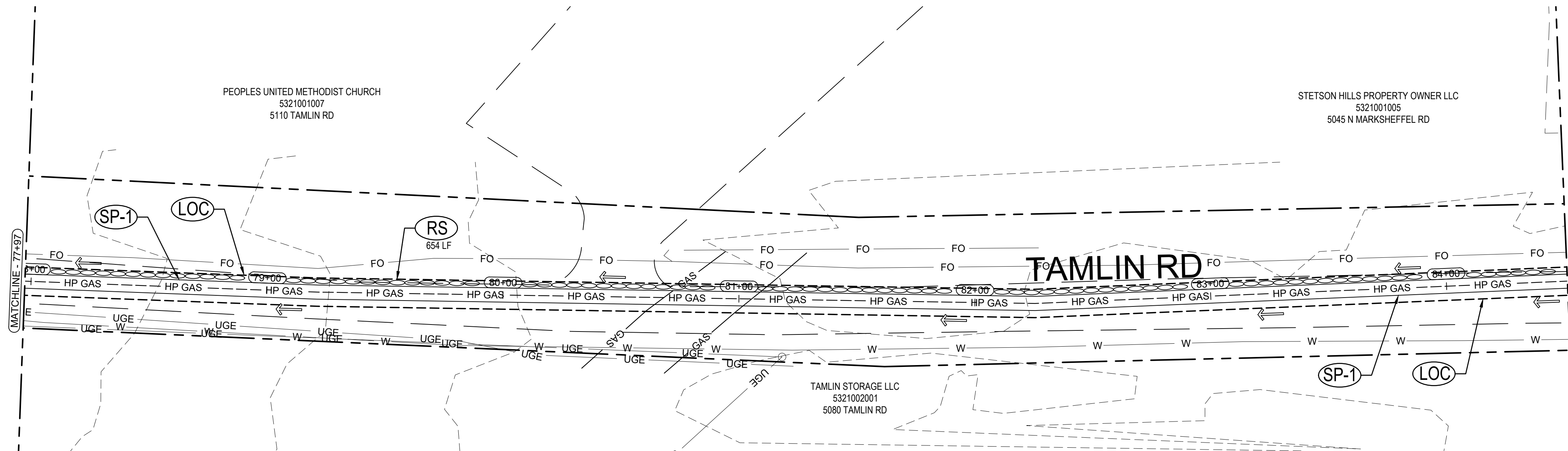
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EC7
sheet number

MARKSHEFFEL CONNECTOR



VP#14



VP#13

LEGEND

	EXISTING ROW/PROPERTY LINE		EXISTING SANITARY SEWER
	EXISTING CURB LINE		EXISTING WATER
	SEEDING AND MULCHING		SILT FENCE
	MATERIALS STAGING		SOIL DISTURBANCE AREA
	ROCK SOCK		EXISTING FLOW DIRECTION
	LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE		
	INLET PROTECTION		



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16-IN HIGH PRESSURE GAS MAIN

EL PASO COUNTY, COLORADO

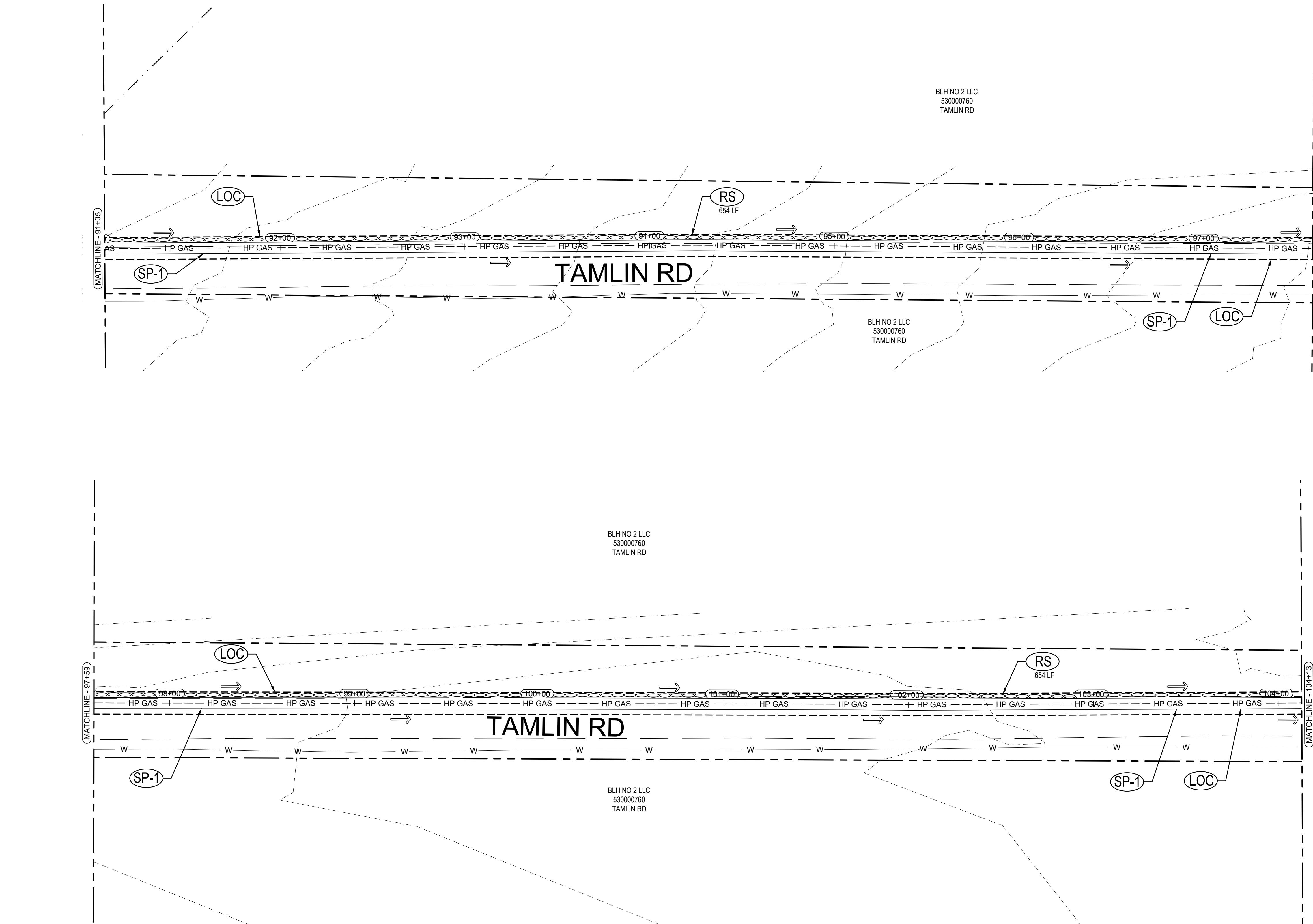
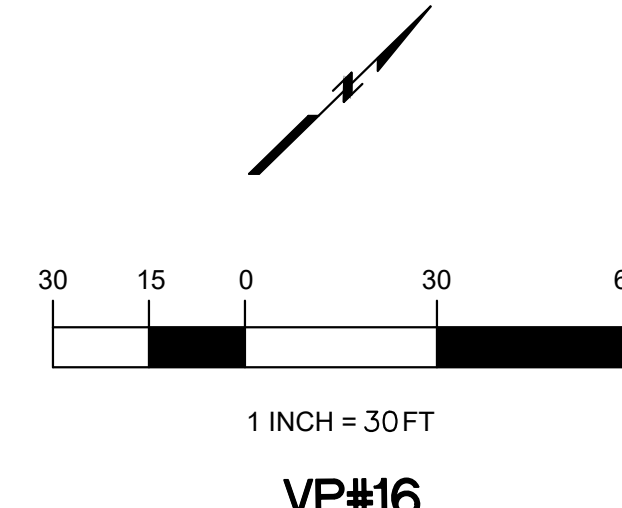
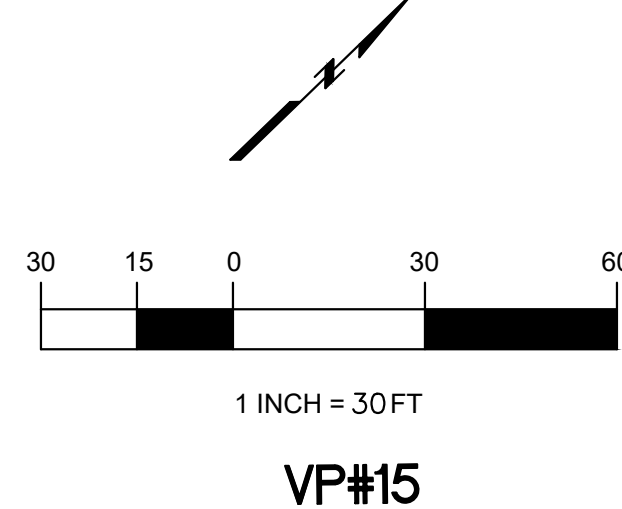
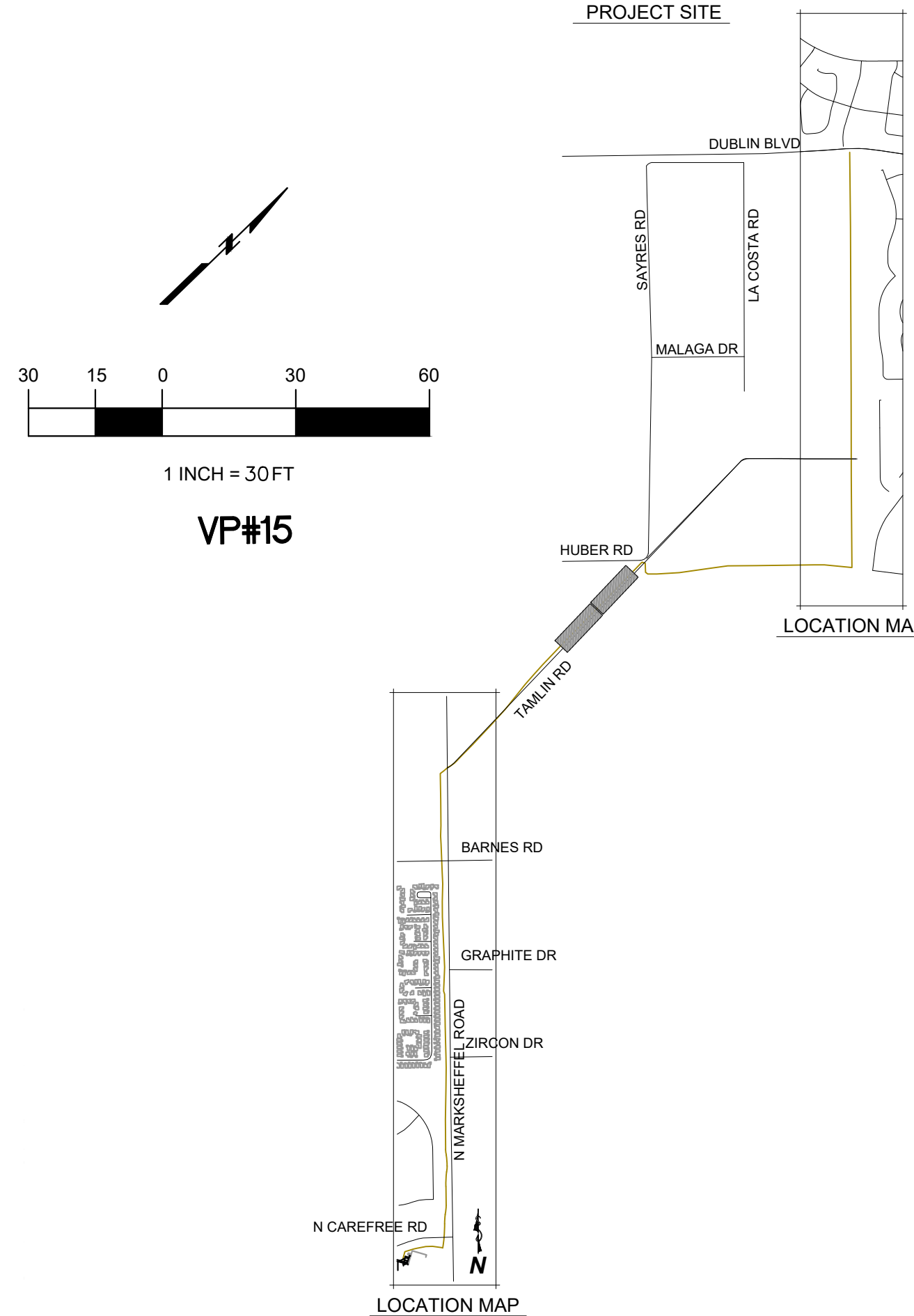
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issued	05/10/24

EC8

sheet number

MARKSHEFFEL CONNECTOR



- LEGEND**
- | | | | |
|----------------|--|-------|-------------------------|
| --- | EXISTING ROW/PROPERTY LINE | --- | EXISTING SANITARY SEWER |
| - - - | EXISTING CURB LINE | --- | EXISTING WATER |
| [Pattern] (SM) | SEEDING AND MULCHING | --- | |
| (SP-1) (SP-2) | MATERIALS STAGING | x | (SF) SILT FENCE |
| (RS) | ROCK SOCK | [Box] | SOIL DISTURBANCE AREA |
| --- | (LOC) LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE | → | EXISTING FLOW DIRECTION |
| [Symbol] | (IP) INLET PROTECTION | | |



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MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

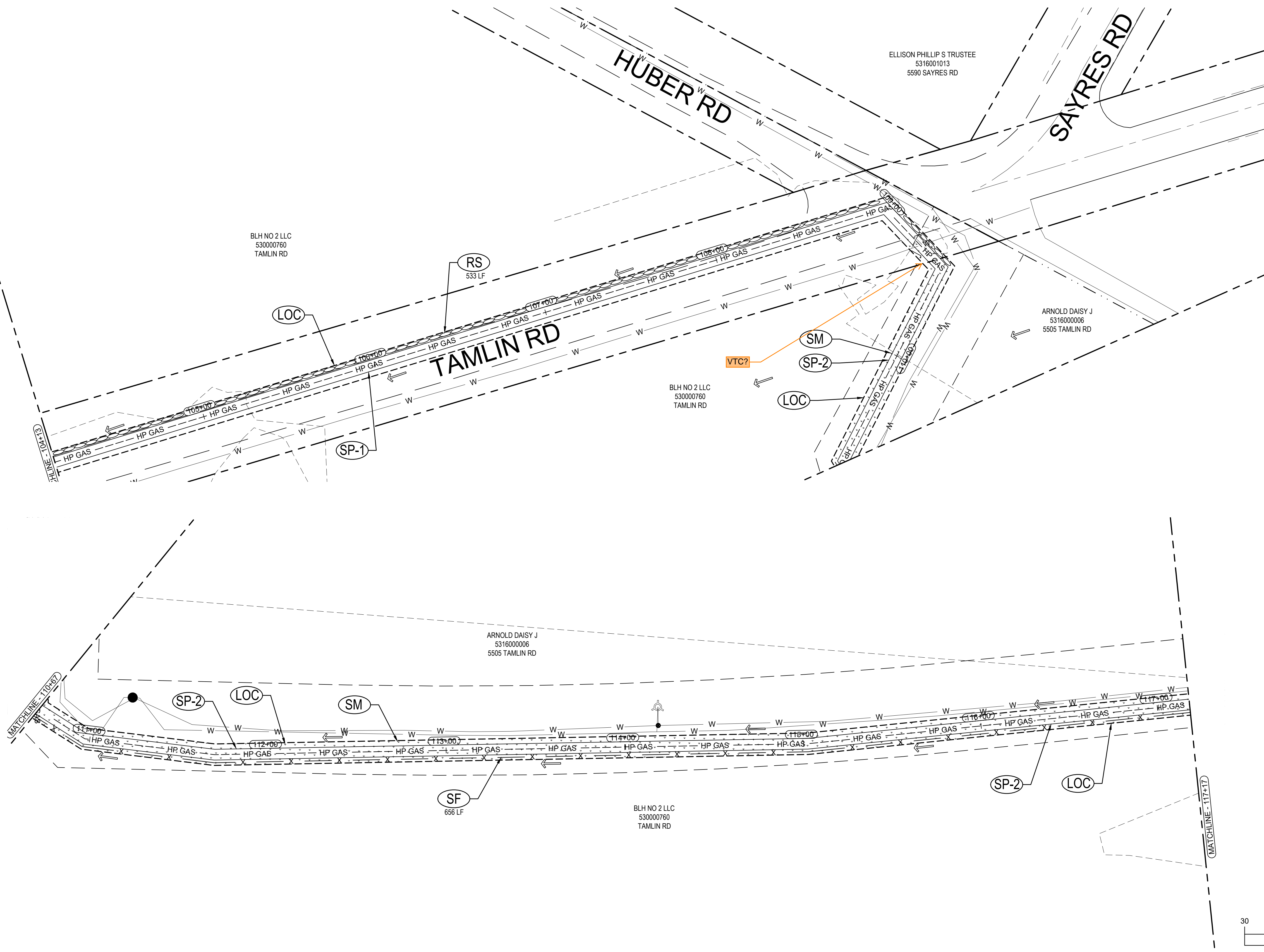
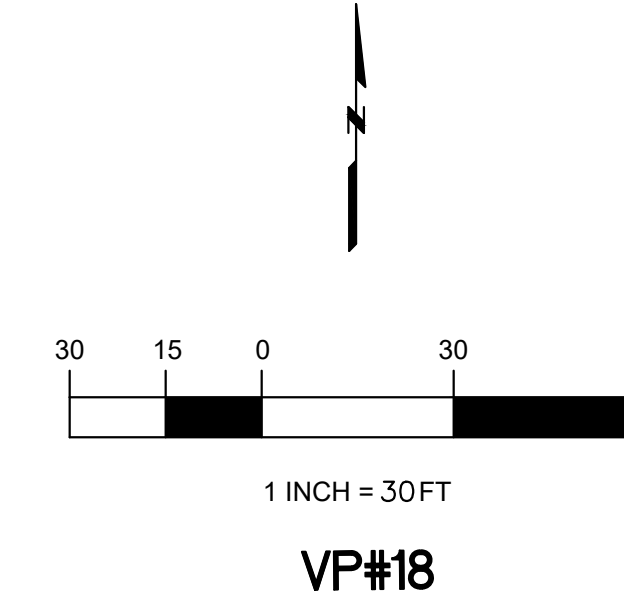
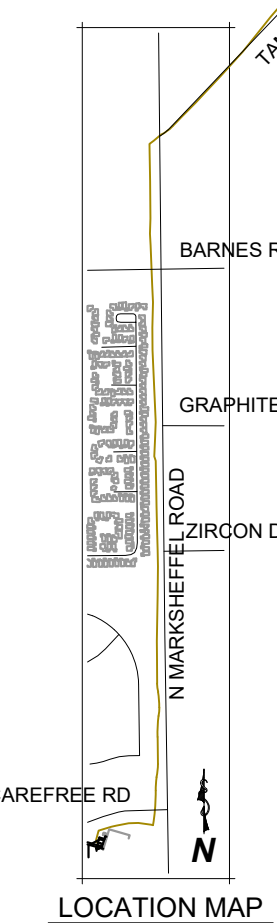
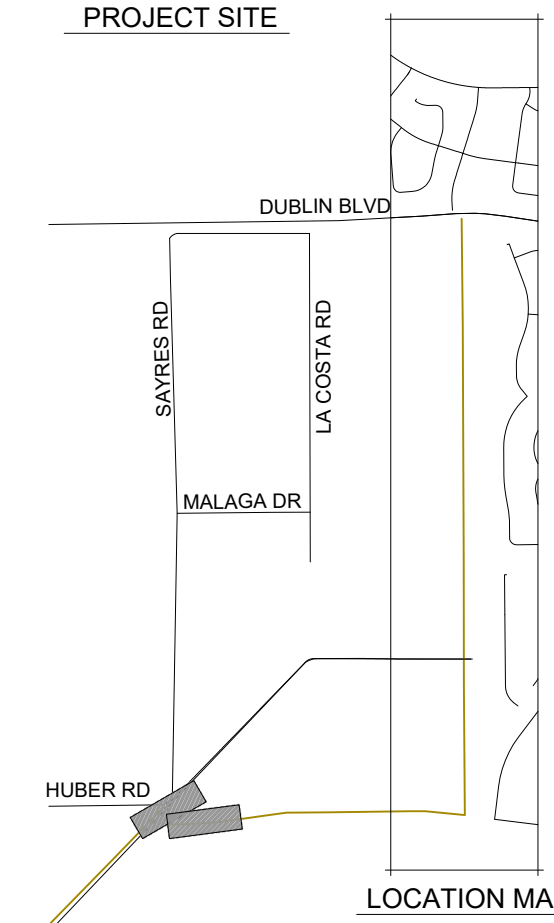
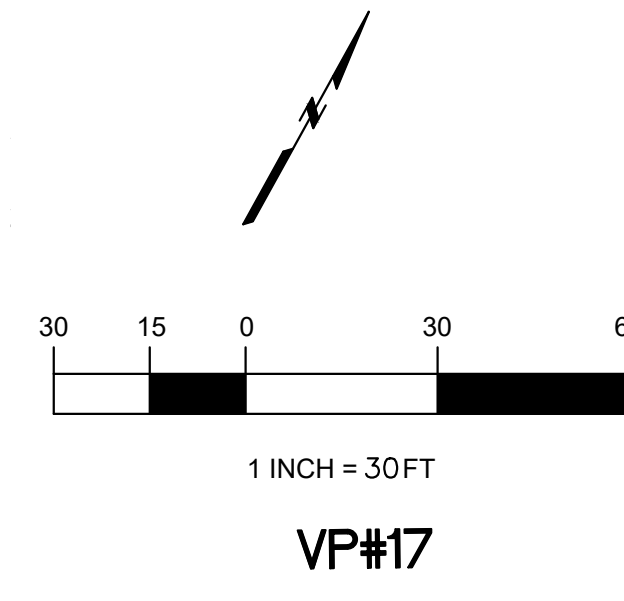
EROSION CONTROL PLAN

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EC9
sheet number

MARKSHEFFEL CONNECTOR

PROJECT SITE



LEGEND

	EXISTING ROW/PROPERTY LINE		EXISTING SANITARY SEWER
	EXISTING CURB LINE		EXISTING WATER
	SEEDING AND MULCHING		SILT FENCE
	MATERIALS STAGING		SOIL DISTURBANCE AREA
	MATERIALS STAGING		EXISTING FLOW DIRECTION
	ROCK SOCK		
	LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE		
	INLET PROTECTION		



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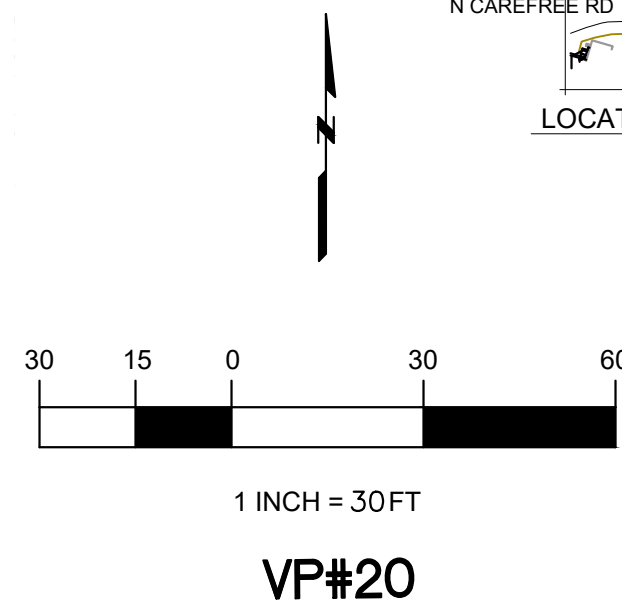
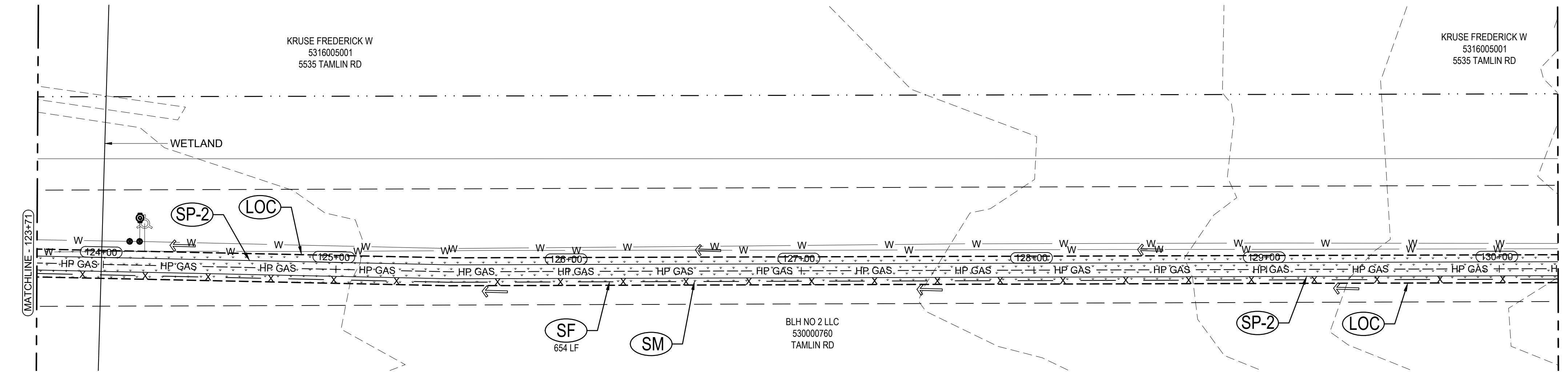
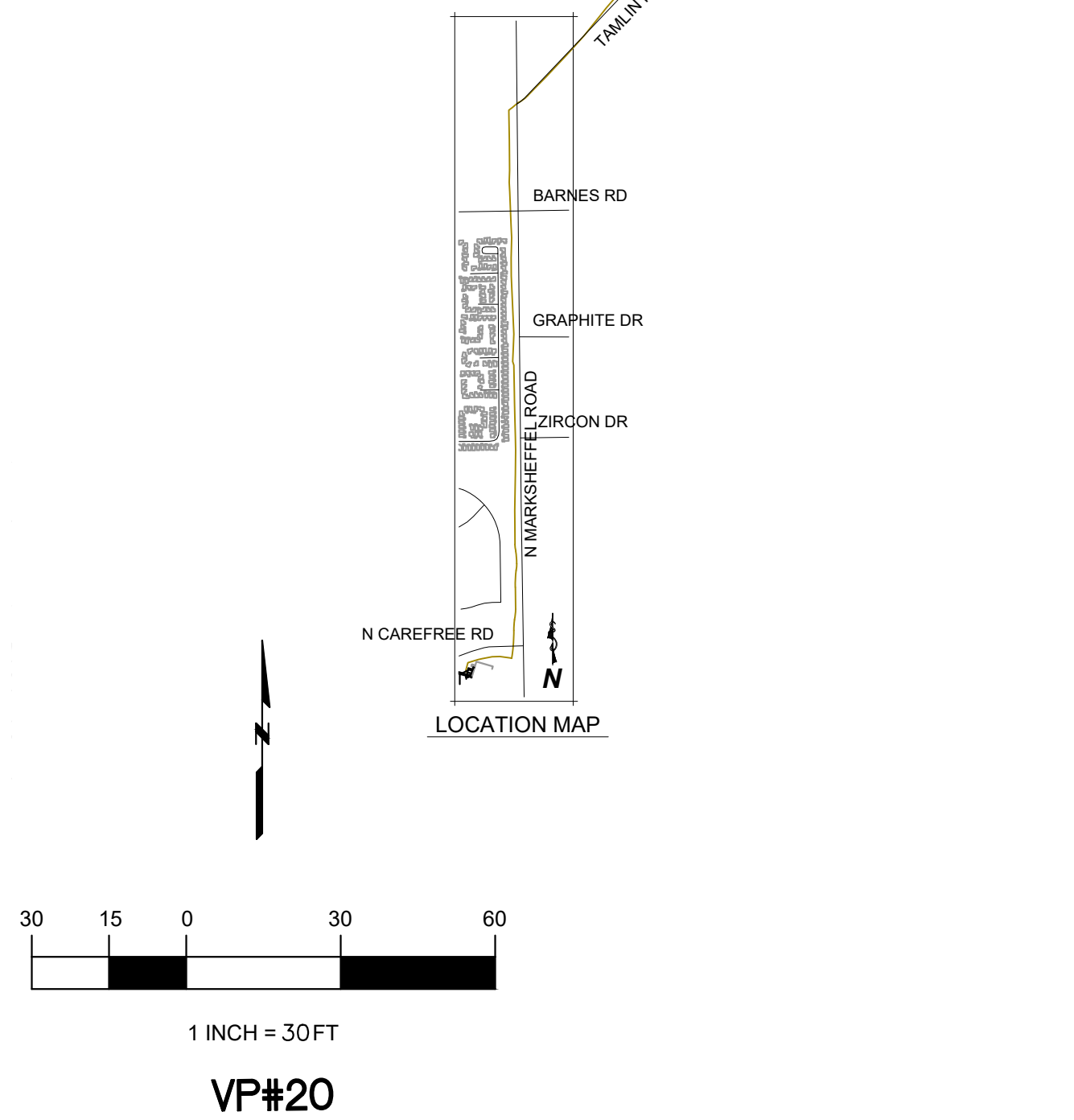
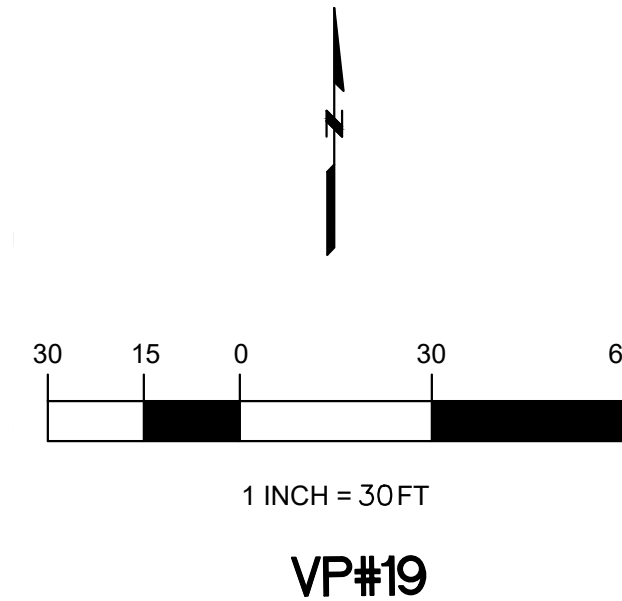
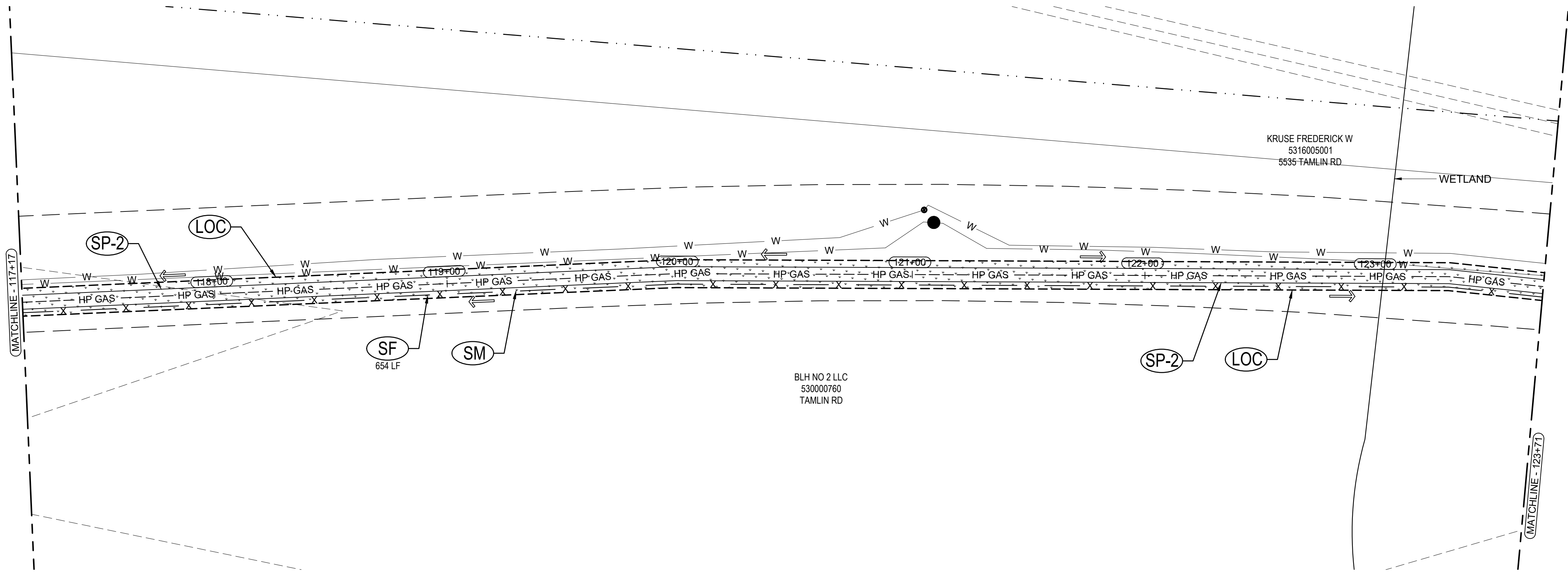


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MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

E R O S I O N C O N T R O L P L A N

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- LEGEND**
- | | | | |
|----------------|--|--------------|-------------------------|
| --- -- | EXISTING ROW/PROPERTY LINE | --- (W) --- | EXISTING SANITARY SEWER |
| - - - - | EXISTING CURB LINE | --- x --- | EXISTING WATER |
| [Pattern] (SM) | SEEDING AND MULCHING | (SF) | SILT FENCE |
| (SP-1) (SP-2) | MATERIALS STAGING | [Shaded Box] | SOIL DISTURBANCE AREA |
| (RS) | ROCK SOCK | [Arrow] | EXISTING FLOW DIRECTION |
| (LOC) | LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE | | |
| (IP) | INLET PROTECTION | | |



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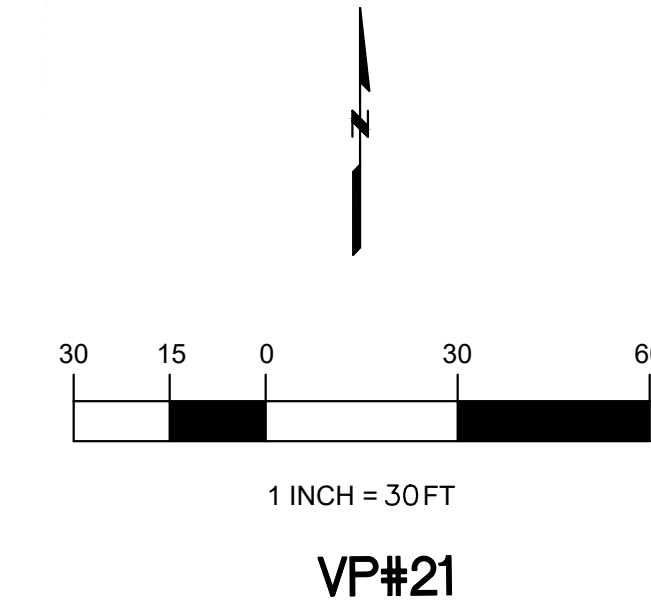
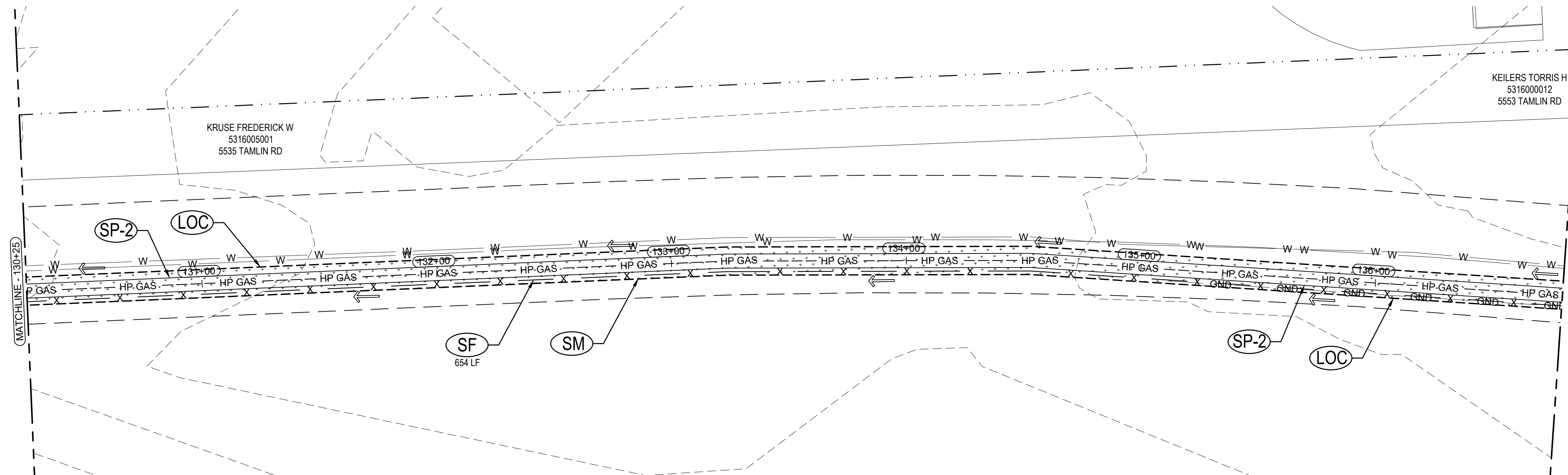
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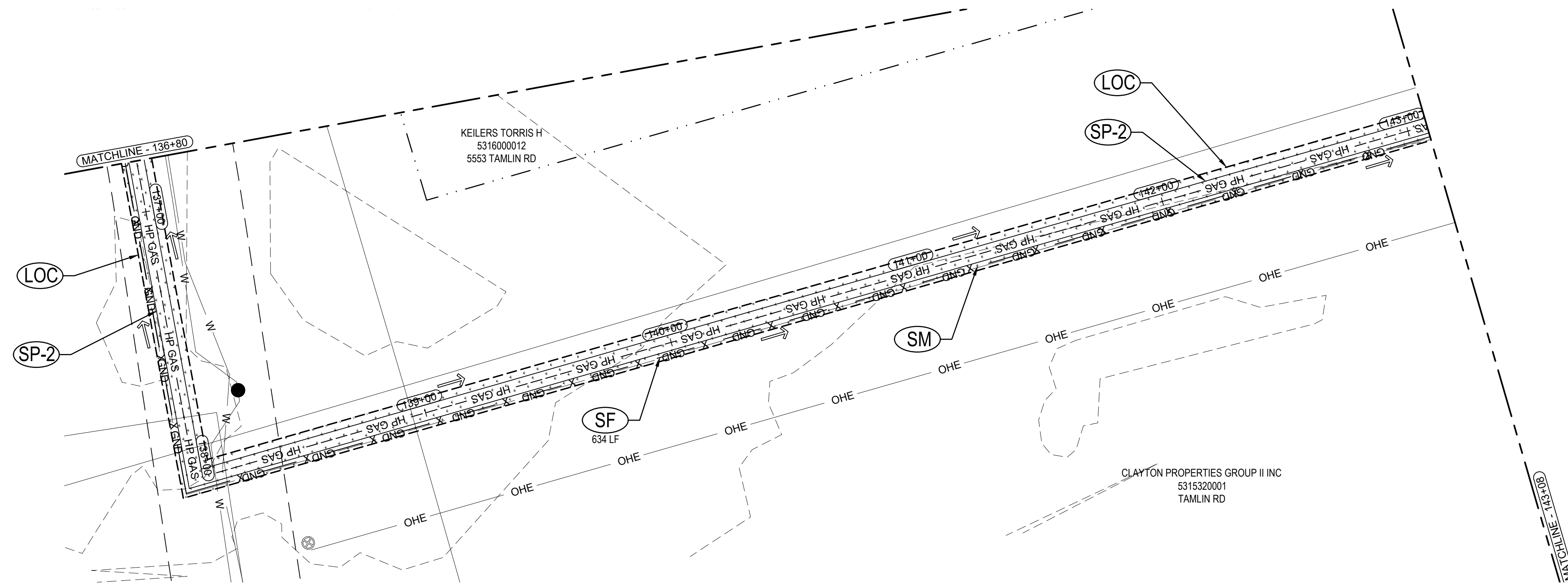
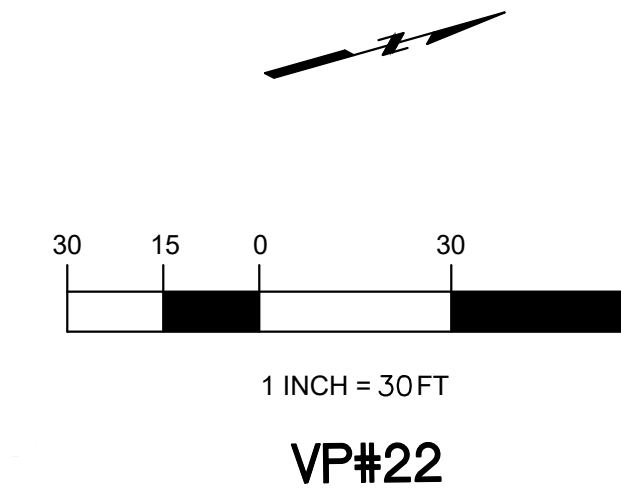
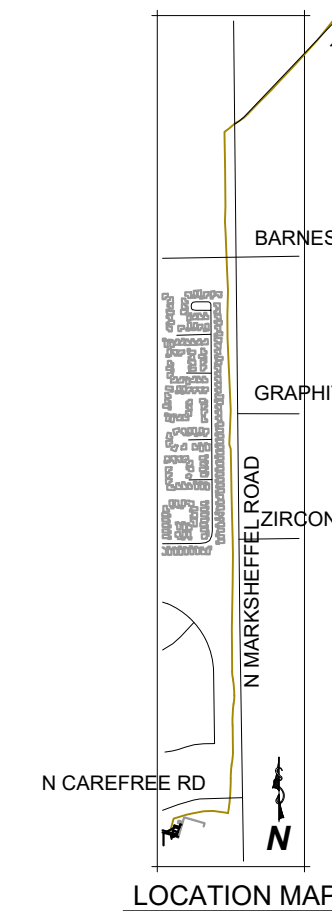
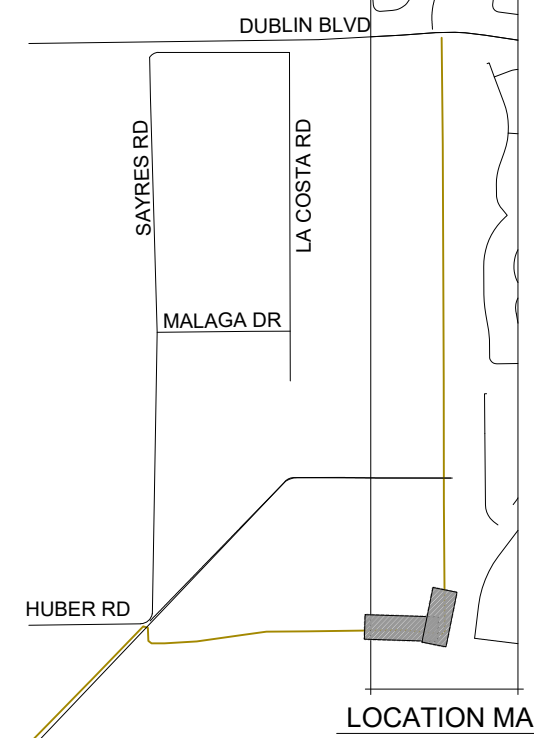
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EC11
sheet number



MARKSHEFFEL CONNECTOR

PROJECT SITE



---	EXISTING ROW/PROPERTY LINE	---	EXISTING SANITARY SEWER
- - -	EXISTING CURB LINE	---	EXISTING WATER
[Pattern] (SM)	SEEDING AND MULCHING	---	
(SP-1) (SP-2)	MATERIALS STAGING	---	
(RS)	ROCK SOCK	---	
---	LOC	---	
(IP)	INLET PROTECTION	---	
		(SF)	SILT FENCE
		[Pattern]	SOIL DISTURBANCE AREA
		---	EXISTING FLOW DIRECTION



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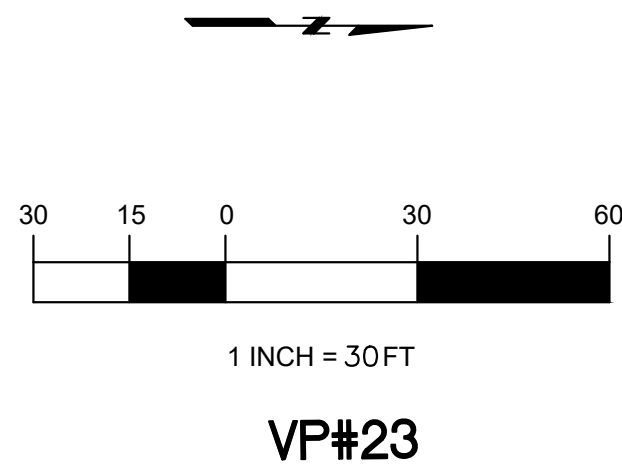


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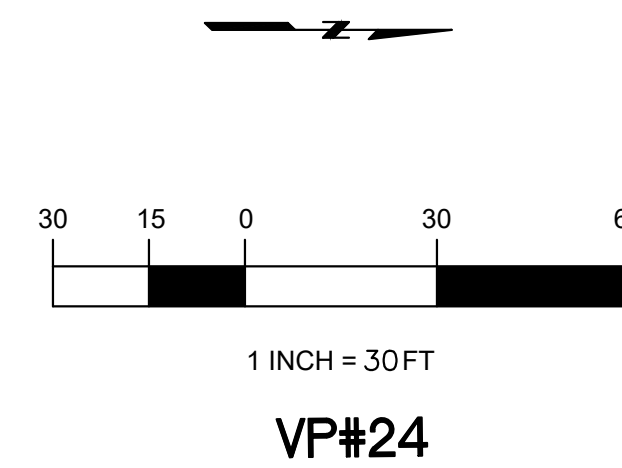
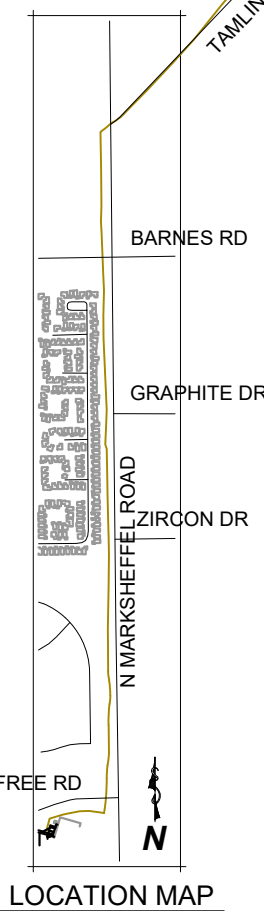
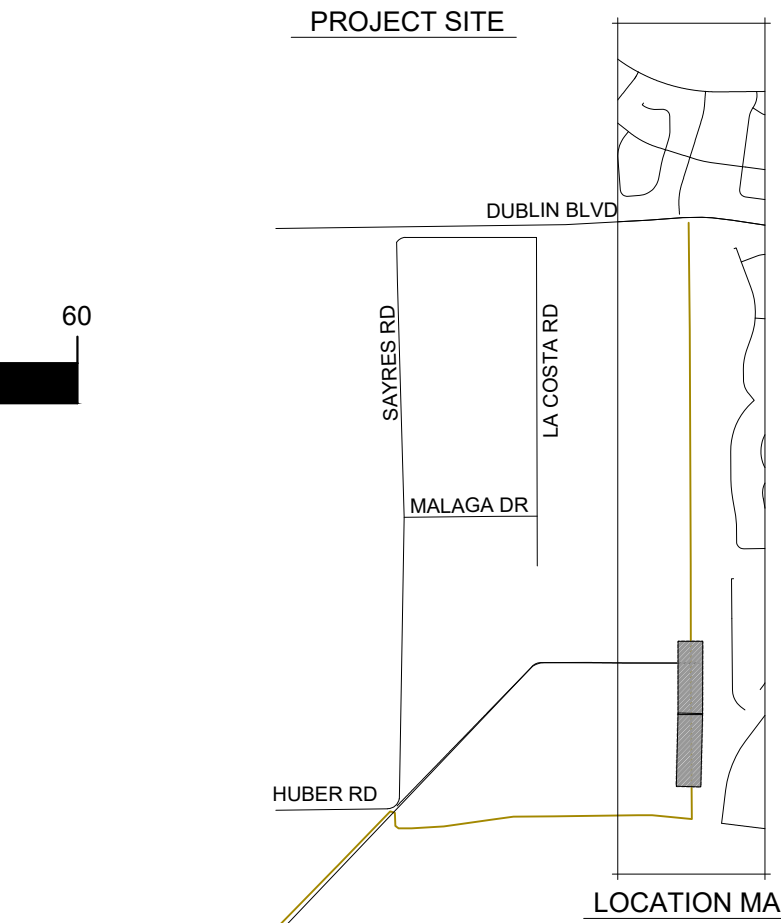
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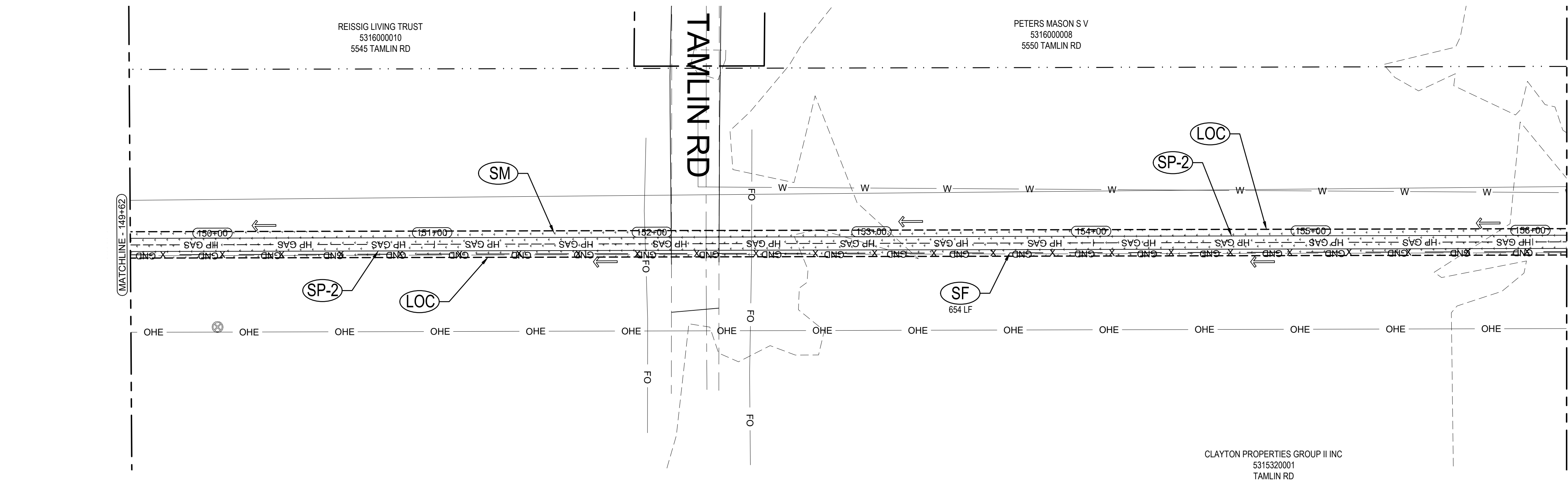
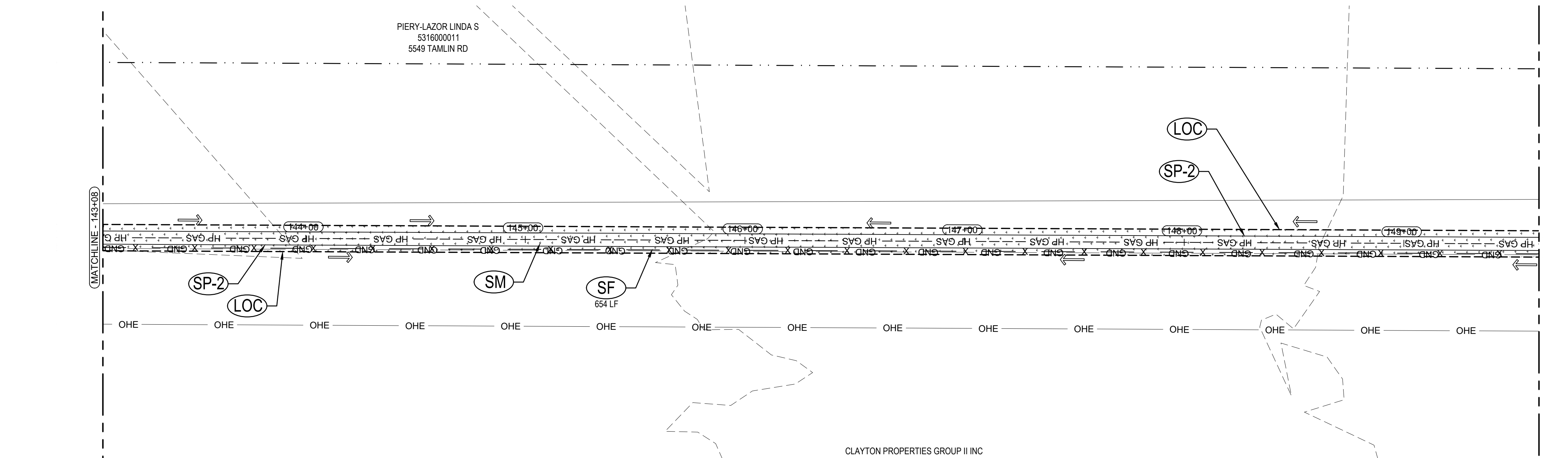
PROJECT SITE



VP#23



VP#24



- ### LEGEND
- | | | | |
|--------------------|--|--------------|-------------------------|
| --- | EXISTING ROW/PROPERTY LINE | — (W) — | EXISTING SANITARY SEWER |
| - - - | EXISTING CURB LINE | — — | EXISTING WATER |
| [Pattern Box] (SM) | SEEDING AND MULCHING | — x — (SF) | SILT FENCE |
| (SP-1) (SP-2) | MATERIALS STAGING | [Shaded Box] | SOIL DISTURBANCE AREA |
| (RS) | ROCK SOCK | → | EXISTING FLOW DIRECTION |
| - - - (LOC) | LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE | | |
| [Hatched Box] (IP) | INLET PROTECTION | | |

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MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

EROSION CONTROL PLAN

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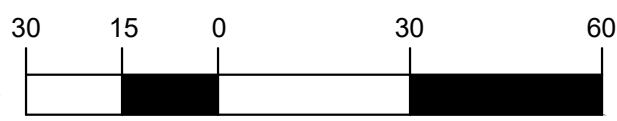
EROSION CONTROL PLAN

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EC15
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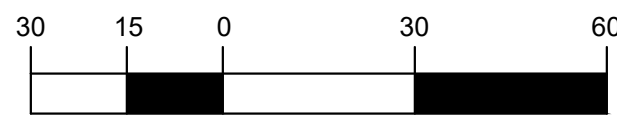
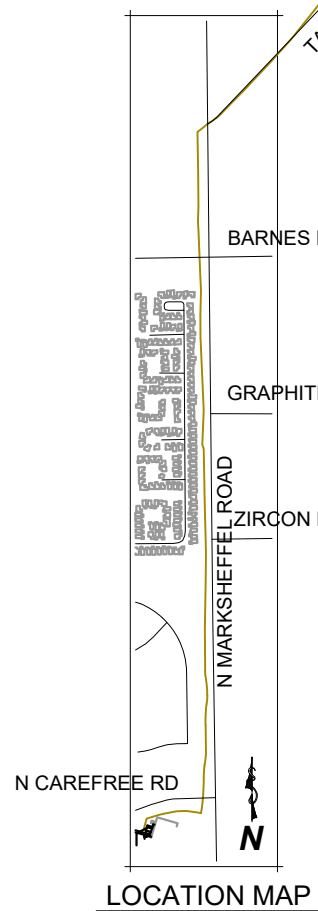
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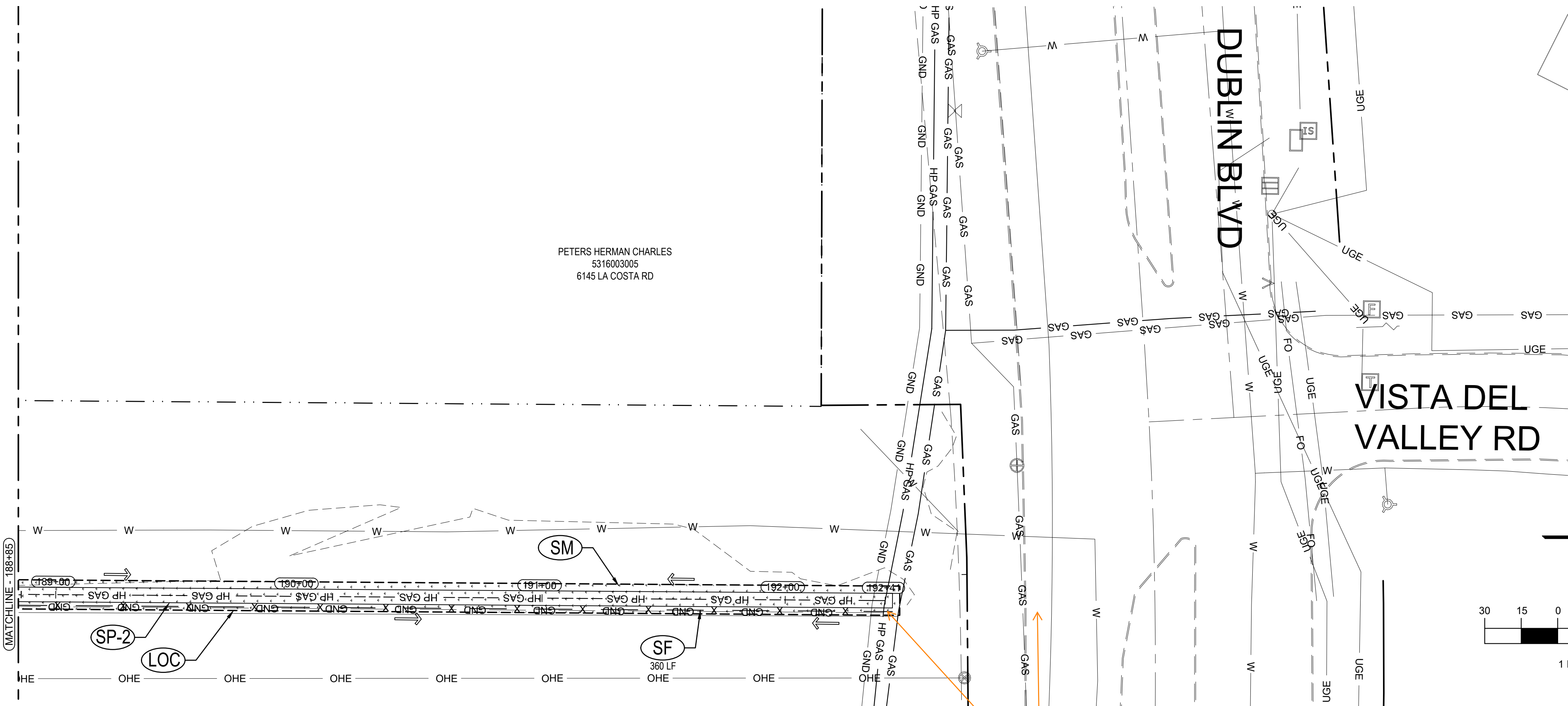
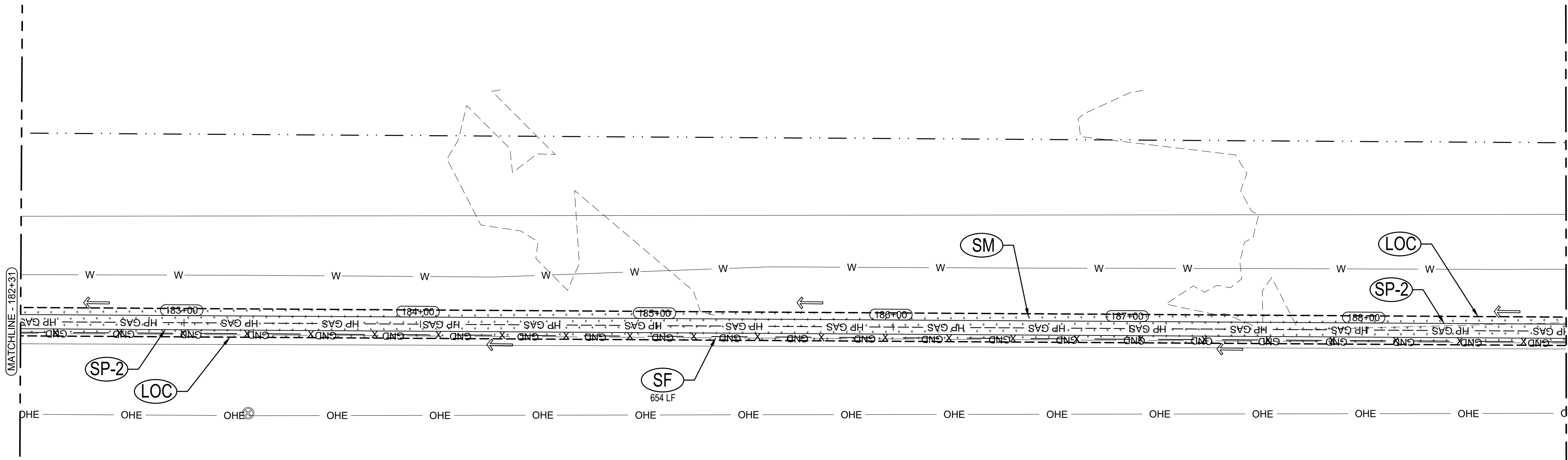


VP#29

LOCATION MAP



VP#30



VTC?

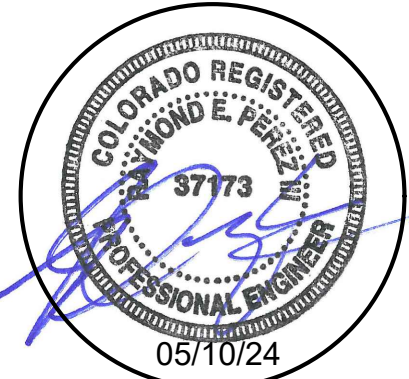
LEGEND

- | | |
|--|-------------------------------------|
| --- EXISTING ROW/PROPERTY LINE | --- (W) --- EXISTING SANITARY SEWER |
| - - - EXISTING CURB LINE | --- EXISTING WATER |
| [Pattern] (SM) SEEDING AND MULCHING | |
| (SP-1) (SP-2) MATERIALS STAGING | |
| (RS) ROCK SOCK | |
| (LOC) LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE | (SF) SILT FENCE |
| (IP) INLET PROTECTION | [Box] SOIL DISTURBANCE AREA |
| | ---> EXISTING FLOW DIRECTION |

Provide details for Inlet protection and rock socks.



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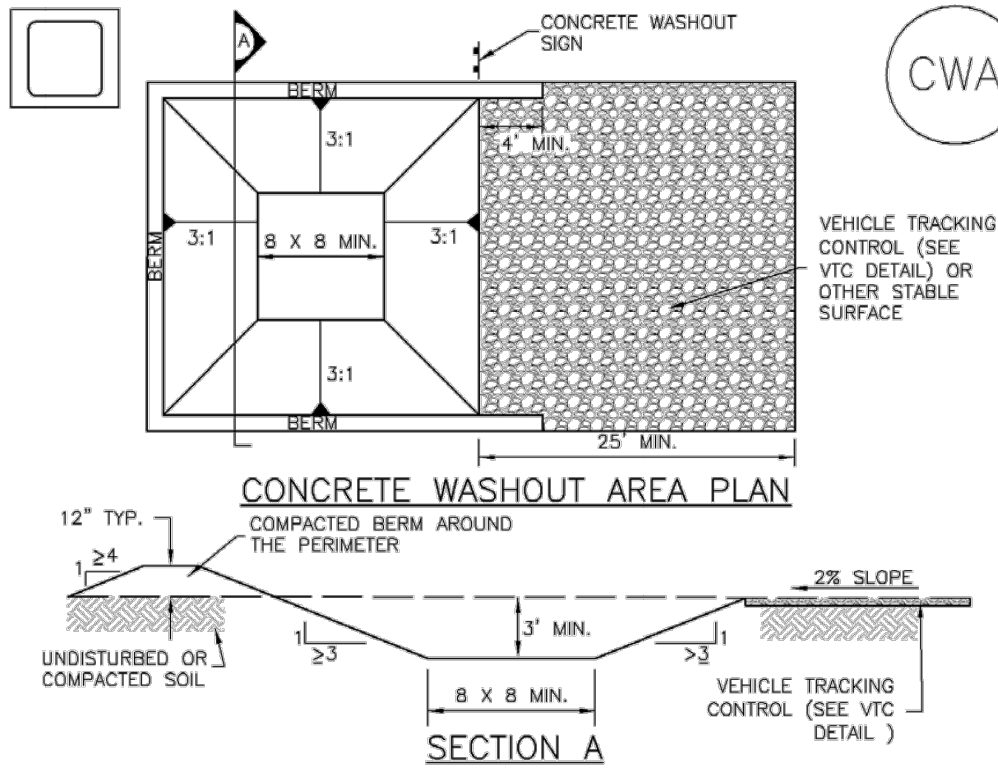
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16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

◆ EROSION CONTROL DETAILS

Issued 05/10/24

DT1
sheet number

Concrete Washout Area (CWA) MM-1



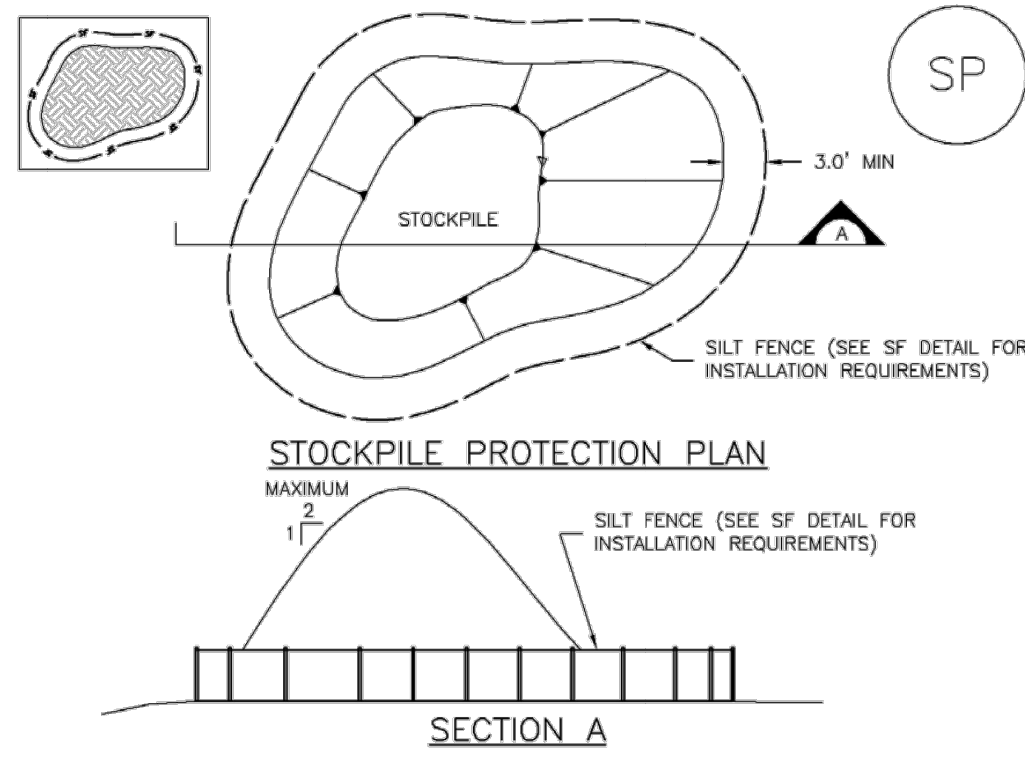
CWA-1. CONCRETE WASHOUT AREA

CWA INSTALLATION NOTES

- SEE PLAN VIEW FOR:
-CWA INSTALLATION LOCATION.
- DO NOT LOCATE AN UNLINED CWA WITHIN 400' OF ANY NATURAL DRAINAGE PATHWAY OR WATERBODY. DO NOT LOCATE WITHIN 1,000' OF ANY WELLS OR DRINKING WATER SOURCES. IF SITE CONSTRAINTS MAKE THIS INFEASIBLE, OR IF HIGHLY PERMEABLE SOILS EXIST ON SITE, THE CWA MUST BE INSTALLED WITH AN IMPERMEABLE LINER (16 MIL MIN. THICKNESS) OR SURFACE STORAGE ALTERNATIVES USING PREFABRICATED CONCRETE WASHOUT DEVICES OR A LINED ABOVE GROUND STORAGE ARE SHOULD BE USED.
- THE CWA SHALL BE INSTALLED PRIOR TO CONCRETE PLACEMENT ON SITE.
- CWA SHALL INCLUDE A FLAT SUBSURFACE PIT THAT IS AT LEAST 8" BY 8" SLOPES LEADING OUT OF THE SUBSURFACE PIT SHALL BE 3:1 OR FLATTER. THE PIT SHALL BE AT LEAST 3" DEEP.
- BERM SURROUNDING SIDES AND BACK OF THE CWA SHALL HAVE MINIMUM HEIGHT OF 1'.
- VEHICLE TRACKING PAD SHALL BE SLOPED 2% TOWARDS THE CWA.
- SIGNS SHALL BE PLACED AT THE CONSTRUCTION ENTRANCE, AT THE CWA, AND ELSEWHERE AS NECESSARY TO CLEARLY INDICATE THE LOCATION OF THE CWA TO OPERATORS OF CONCRETE TRUCKS AND PUMP RIGS.
- USE EXCAVATED MATERIAL FOR PERIMETER BERM CONSTRUCTION.

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Urban Storm Drainage Criteria Manual Volume 3 CWA-3

Stockpile Management (SP) MM-2



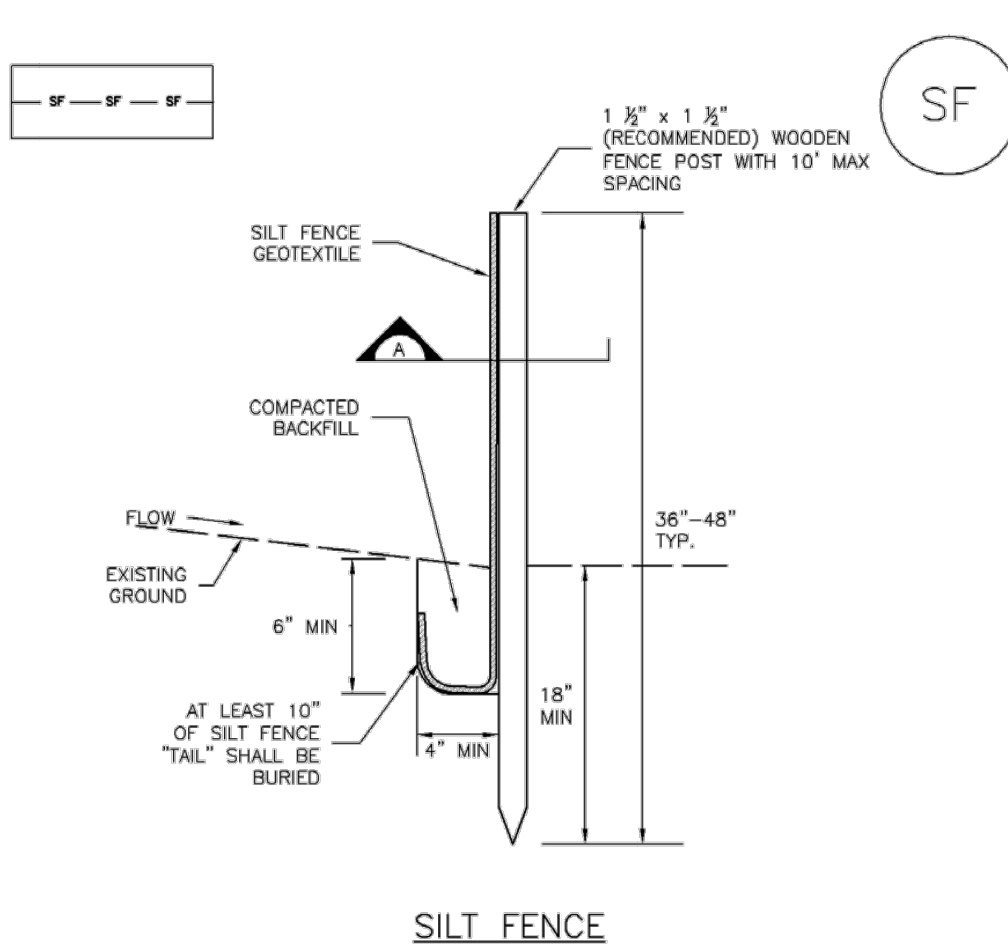
SP-1. STOCKPILE PROTECTION

STOCKPILE PROTECTION INSTALLATION NOTES

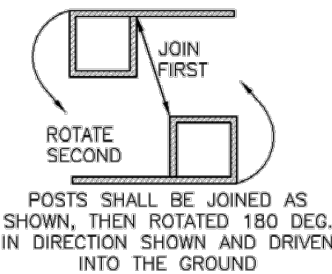
- SEE PLAN VIEW FOR:
-LOCATION OF STOCKPILES
-TYPE OF STOCKPILE PROTECTION.
- INSTALL PERIMETER CONTROLS IN ACCORDANCE WITH THEIR RESPECTIVE DESIGN DETAILS. SILT FENCE IS SHOWN IN THE STOCKPILE PROTECTION DETAILS; HOWEVER, OTHER TYPES OF PERIMETER CONTROLS INCLUDING SEDIMENT CONTROL LOGS OR ROCK SOCKS MAY BE SUITABLE IN SOME CIRCUMSTANCES. CONSIDERATIONS FOR DETERMINING THE APPROPRIATE TYPE OF PERIMETER CONTROL FOR A STOCKPILE INCLUDE WHETHER THE STOCKPILE IS LOCATED ON A PERVIOUS OR IMPERVIOUS SURFACE, THE RELATIVE HEIGHTS OF THE PERIMETER CONTROL AND STOCKPILE, THE ABILITY OF THE PERIMETER CONTROL TO CONTAIN THE STOCKPILE WITHOUT FAILING IN THE EVENT THAT MATERIAL FROM THE STOCKPILE SHIFTS OR SLUMPS AGAINST THE PERIMETER, AND OTHER FACTORS.
- STABILIZE THE STOCKPILE SURFACE WITH SURFACE ROUGHENING, TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS, OR SOIL BINDERS. SOILS STOCKPILED FOR AN EXTENDED PERIOD (TYPICALLY FOR MORE THAN 60 DAYS) SHOULD BE SEEDED AND MULCHED WITH A TEMPORARY GRASS COVER ONCE THE STOCKPILE IS PLACED (TYPICALLY WITHIN 14 DAYS). USE OF MULCH ONLY OR A SOIL BINDER IS ACCEPTABLE IF THE STOCKPILE WILL BE IN PLACE FOR A MORE LIMITED TIME PERIOD (TYPICALLY 30-60 DAYS).
- FOR TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF A CONSTRUCTION SITE, WHERE OTHER DOWNSTREAM CONTROLS, INCLUDING PERIMETER CONTROL, ARE IN PLACE, STOCKPILE PERIMETER CONTROLS MAY NOT BE REQUIRED.

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Silt Fence (SF) SC-1



SILT FENCE



SECTION A

SF-1. SILT FENCE

November 2010 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 SF-3

SC-1 Silt Fence (SF)

SILT FENCE INSTALLATION NOTES

- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER PONDING. SILT FENCE AT THE TOE OF A SLOPE SHOULD BE INSTALLED IN A FLAT LOCATION AT LEAST SEVERAL FEET (2-5 FT) FROM THE TOE OF THE SLOPE TO ALLOW ROOM FOR PONDING AND DEPOSITION.
- A UNIFORM 6" X 4" ANCHOR TRENCH SHALL BE EXCAVATED USING TRENCHER OR SILT FENCE INSTALLATION DEVICE. NO ROAD GRADERS, BACKHOES, OR SIMILAR EQUIPMENT SHALL BE USED.
- COMPACT ANCHOR TRENCH BY HAND WITH A "JUMPING JACK" OR BY WHEEL ROLLING. COMPACTION SHALL BE SUCH THAT SILT FENCE RESISTS BEING PULLED OUT OF ANCHOR TRENCH BY HAND.
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD BE NO NOTICEABLE SAG BETWEEN STAKES AFTER IT HAS BEEN ANCHORED TO THE STAKES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES USING 1" HEAVY DUTY STAPLES OR NAILS WITH 1" HEADS. STAPLES AND NAILS SHOULD BE PLACED 3" ALONG THE FABRIC DOWN THE STAKE.
- AT THE END OF A RUN OF SILT FENCE ALONG A CONTOUR, THE SILT FENCE SHOULD BE TURNED PERPENDICULAR TO THE CONTOUR TO CREATE A "J-HOOK." THE "J-HOOK" EXTENDING PERPENDICULAR TO THE CONTOUR SHOULD BE OF SUFFICIENT LENGTH TO KEEP RUNOFF FROM FLOWING AROUND THE END OF THE SILT FENCE (TYPICALLY 10' - 20').
- SILT FENCE SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.

SILT FENCE MAINTENANCE NOTES

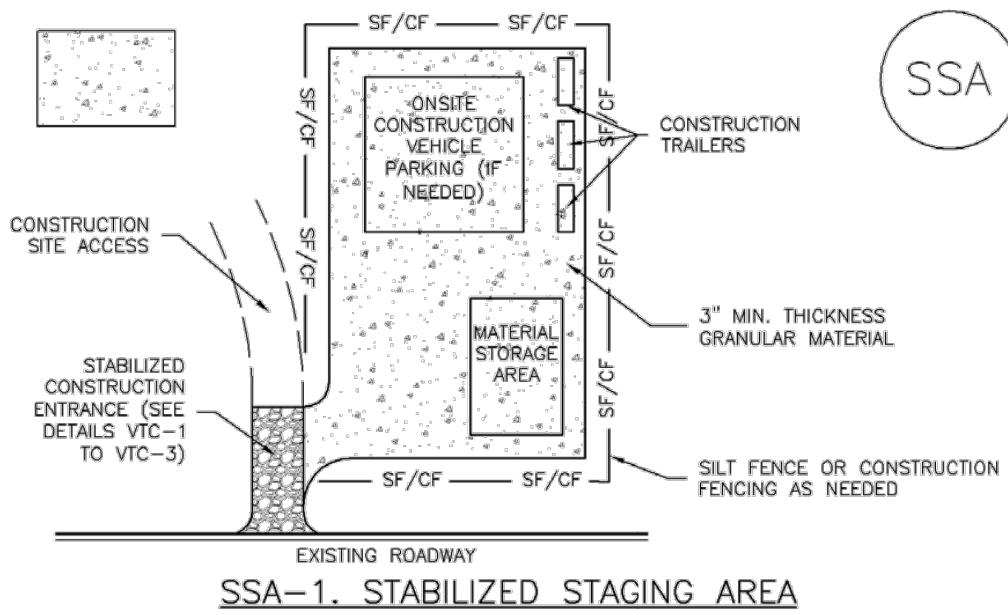
- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN EFFECTIVE OPERATING CONDITION. MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE. INSPECT BMPs AS SOON AS POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A STORM THAT CAUSES SURFACE EROSION, AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- SEDIMENT ACCUMULATED UPSTREAM OF THE SILT FENCE SHALL BE REMOVED AS NEEDED TO MAINTAIN THE FUNCTIONALITY OF THE BMP, TYPICALLY WHEN DEPTH OF ACCUMULATED SEDIMENTS IS APPROXIMATELY 6".
- REPAIR OR REPLACE SILT FENCE WHEN THERE ARE SIGNS OF WEAR, SUCH AS SAGGING, TEARING, OR COLLAPSE.
- SILT FENCE IS TO REMAIN IN PLACE UNTIL THE UPSTREAM DISTURBED AREA IS STABILIZED AND APPROVED BY THE LOCAL JURISDICTION, OR IS REPLACED BY AN EQUIVALENT PERIMETER SEDIMENT CONTROL BMP.
- WHEN SILT FENCE IS REMOVED, ALL DISTURBED AREAS SHALL BE COVERED WITH TOPSOIL, SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY LOCAL JURISDICTION.

(DETAIL ADAPTED FROM TOWN OF PARKER, COLORADO AND CITY OF AURORA, NOT AVAILABLE IN AUTOCAD)

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.

SF-4 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 November 2010

Stabilized Staging Area (SSA) SM-6



SSA-1. STABILIZED STAGING AREA

STABILIZED STAGING AREA INSTALLATION NOTES

- SEE PLAN VIEW FOR:
-LOCATION OF STAGING AREA(S)
-CONTRACTOR MAY ADJUST LOCATION AND SIZE OF STAGING AREA WITH APPROVAL FROM THE LOCAL JURISDICTION.
- STABILIZED STAGING AREA SHOULD BE APPROPRIATE FOR THE NEEDS OF THE SITE. OVERSIZING RESULTS IN A LARGER AREA TO STABILIZE FOLLOWING CONSTRUCTION.
- STAGING AREA SHALL BE STABILIZED PRIOR TO OTHER OPERATIONS ON THE SITE.
- THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM 3" THICK GRANULAR MATERIAL.
- UNLESS OTHERWISE SPECIFIED BY LOCAL JURISDICTION, ROCK SHALL CONSIST OF DOT SECT. #703, AASHTO #3 COARSE AGGREGATE OR 6" (MINUS) ROCK.
- ADDITIONAL PERIMETER BMPs MAY BE REQUIRED INCLUDING BUT NOT LIMITED TO SILT FENCE AND CONSTRUCTION FENCING.

STABILIZED STAGING AREA MAINTENANCE NOTES

- 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.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY TO MAINTAIN BMPs IN EFFECTIVE OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MEASURES SHOULD BE DOCUMENTED THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE INITIATED UPON DISCOVERY OF THE FAILURE.
- ROCK SHALL BE REAPPLIED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

November 2010 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 SSA-3

SSA-4 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 November 2010

CASE 2
Parking, Staging and Loading/Unloading Area

CASE 1
Construction Entrance

Table VT-1

	Case 1	Case 2
Gravel Thickness	9"	3"
Filter Fabric	YES	NO

City of Colorado Springs
Storm Water Quality

Figure VT-1
Vehicle Tracking
Application Examples

DEM\N153722.CS,CB\FigVT-19-99

VEHICLE TRACKING

INSTALLATION REQUIREMENTS

- ALL ENTRANCES TO THE CONSTRUCTION SITE ARE TO BE STABILIZED PRIOR TO CONSTRUCTION BEGINNINGS.
- 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

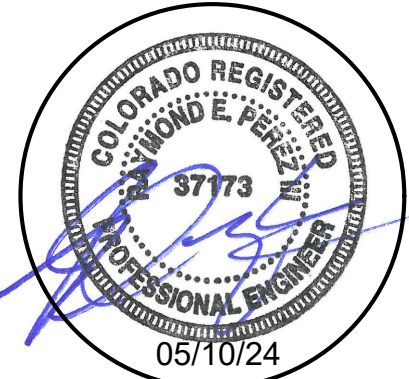
- REGULAR INSPECTIONS ARE TO BE MADE OF ALL STABILIZED AREAS, ESPECIALLY AFTER STORM EVENTS.
- STONES ARE TO BE REAPPLIED PERIODICALLY AND WHEN REPAIR IS NECESSARY.
- SEDIMENT TRACKED ONTO PAVED ROADS IS TO BE REMOVED DAILY BY SHOVELING OR SWEEPING. SEDIMENT IS NOT TO BE WASHED DOWN STORM SEWER DRAINS.
- 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.

City of Colorado Springs
Stormwater Quality

Figure VT-2
Vehicle Tracking
Application Examples



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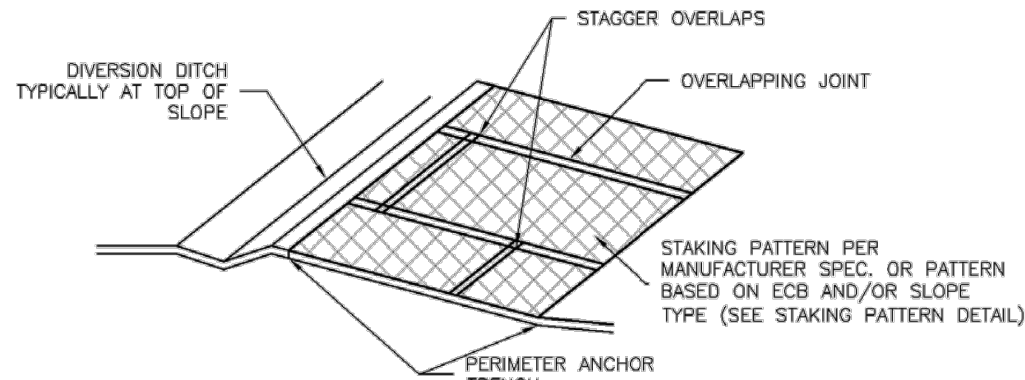
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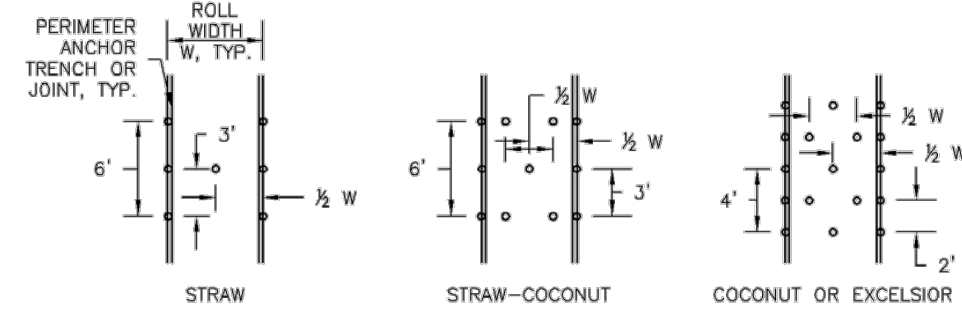
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EL PASO COUNTY, COLORADO

Rolled Erosion Control Products (RECP)

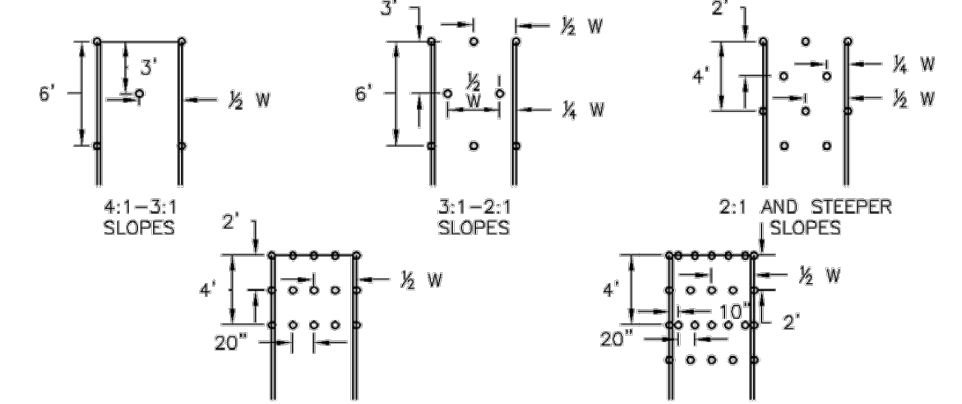
EC-6



ECB-3. OUTSIDE OF DRAINAGEWAY



STAKING PATTERNS BY ECB TYPE



STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

November 2010 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 RECP-7

EC-6 Rolled Erosion Control Products (RECP)

EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE PLAN VIEW FOR:
 - LOCATION OF ECB.
 - TYPE OF ECB (STRAW, STRAW-COCONUT, COCONUT, OR EXCELSIOR).
 - AREA, A, IN SQUARE YARDS OF EACH TYPE OF ECB.
- 100% NATURAL AND BIODEGRADABLE MATERIALS ARE PREFERRED FOR RECPs, ALTHOUGH SOME JURISDICTIONS MAY ALLOW OTHER MATERIALS IN SOME APPLICATIONS.
- IN AREAS WHERE ECBs ARE SHOWN ON THE PLANS, THE PERMITTEE SHALL PLACE TOPSOIL AND PERFORM FINAL GRADING, SURFACE PREPARATION, AND SEEDING AND MULCHING. SUBGRADE SHALL BE SMOOTH AND MOIST PRIOR TO ECB INSTALLATION AND THE ECB SHALL BE IN FULL CONTACT WITH SUBGRADE. NO GAPS OR VOIDS SHALL EXIST UNDER THE BLANKET.
- PERIMETER ANCHOR TRENCH SHALL BE USED ALONG THE OUTSIDE PERIMETER OF ALL BLANKET AREAS.
- JOINT ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER (LONGITUDINALLY AND TRANSVERSELY) FOR ALL ECBs EXCEPT STRAW WHICH MAY USE AN OVERLAPPING JOINT.
- INTERMEDIATE ANCHOR TRENCH SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR COCONUT AND EXCELSIOR ECBs.
- OVERLAPPING JOINT DETAIL SHALL BE USED TO JOIN ROLLS OF ECBs TOGETHER FOR ECBs ON SLOPES.
- MATERIAL SPECIFICATIONS OF ECBs SHALL CONFORM TO TABLE ECB-1.
- ANY AREAS OF SEEDING AND MULCHING DISTURBED IN THE PROCESS OF INSTALLING ECBs SHALL BE RESEEDED AND MULCHED.
- DETAILS ON DESIGN PLANS FOR MAJOR DRAINAGEWAY STABILIZATION WILL GOVERN IF DIFFERENT FROM THOSE SHOWN HERE.

TABLE ECB-1. ECB MATERIAL SPECIFICATIONS				
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 STREETS AND DRAINAGE CHANNEL.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS

RECP-8 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 November 2010

Mulching (MU)

EC-4

Description

Mulching consists of evenly applying straw, hay, shredded wood mulch, rock, bark or compost to disturbed soils and securing the mulch by crimping, tackifiers, netting or other measures. Mulching helps reduce erosion by protecting bare soil from rainfall impact, increasing infiltration, and reducing runoff. Although often applied in conjunction with temporary or permanent seeding, it can also be used for temporary stabilization of areas that cannot be reseeded due to seasonal constraints.



Photograph MU-1. An area that was recently seeded, mulched, and crimped.

Mulch can be applied either using standard mechanical dry application methods or using hydromulching equipment that hydraulically applies a slurry of water, wood fiber mulch, and often a tackifier.

Appropriate Uses

Use mulch in conjunction with seeding to help protect the seedbed and stabilize the soil. Mulch can also be used as a temporary cover on low to mild slopes to help temporarily stabilize disturbed areas where growing season constraints prevent effective reseeded. Disturbed areas should be properly mulched and tacked, or seeded, mulched and tacked promptly after final grade is reached (typically within no longer than 14 days) on portions of the site not otherwise permanently stabilized.

Standard dry mulching is encouraged in most jurisdictions; however, hydromulching may not be allowed in certain jurisdictions or may not be allowed near waterways.

Do not apply mulch during windy conditions.

Design and Installation

Prior to mulching, surface-roughen areas by rolling with a crimping or punching type roller or by track walking. Track walking should only be used where other methods are impractical because track walking with heavy equipment typically compacts the soil.

A variety of mulches can be used effectively at construction sites. Consider the following:

Mulch	
Functions	
Erosion Control	Yes
Sediment Control	Moderate
Site/Material Management	No

June 2012 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 MU-1

EC-4

Mulching (MU)

- Clean, weed-free and seed-free cereal grain straw should be applied evenly at a rate of 2 tons per acre and must be tacked or fastened by a method suitable for the condition of the site. Straw mulch must be anchored (and not merely placed) on the surface. This can be accomplished mechanically by crimping or with the aid of tackifiers or nets. Anchoring with a crimping implement is preferred, and is the recommended method for areas flatter than 3:1. Mechanical crimpers must be capable of tucking the long mulch fibers into the soil to a depth of 3 inches without cutting them. An agricultural disk, while not an ideal substitute, may work if the disk blades are dull or blunted and set vertically; however, the frame may have to be weighted to afford proper soil penetration.
- Grass hay may be used in place of straw; however, because hay is comprised of the entire plant including seed, mulching with hay may seed the site with non-native grass species which might in turn out-compete the native seed. Alternatively, native species of grass hay may be purchased, but can be difficult to find and are more expensive than straw. Purchasing and utilizing a certified weed-free straw is an easier and less costly mulching method. When using grass hay, follow the same guidelines as for straw (provided above).
- On small areas sheltered from the wind and heavy runoff, spraying a tackifier on the mulch is satisfactory for holding it in place. For steep slopes and special situations where greater control is needed, erosion control blankets anchored with stakes should be used instead of mulch.
- Hydraulic mulching consists of wood cellulose fibers mixed with water and a tackifying agent and should be applied at a rate of no less than 1,500 pounds per acre (1,425 lbs of fibers mixed with at least 75 lbs of tackifier) with a hydraulic mulcher. For steeper slopes, up to 2000 pounds per acre may be required for effective hydroseeding. Hydromulch typically requires up to 24 hours to dry; therefore, it should not be applied immediately prior to inclement weather. Application to roads, waterways and existing vegetation should be avoided.
- Erosion control mats, blankets, or nets are recommended to help stabilize steep slopes (generally 3:1 and steeper) and waterways. Depending on the product, these may be used alone or in conjunction with grass or straw mulch. Normally, use of these products will be restricted to relatively small areas. Biodegradable mats made of straw and jute, straw-coconut, coconut fiber, or excelsior can be used instead of mulch. (See the ECM/TRM BMP for more information.)
- Some tackifiers or binders may be used to anchor mulch. Check with the local jurisdiction for allowed tackifiers. Manufacturer's recommendations should be followed at all times. (See the Soil Binder BMP for more information on general types of tackifiers.)
- Rock can also be used as mulch. It provides protection of exposed soils to wind and water erosion and allows infiltration of precipitation. An aggregate base course can be spread on disturbed areas for temporary or permanent stabilization. The rock mulch layer should be thick enough to provide full coverage of exposed soil on the area it is applied.

Maintenance and Removal

After mulching, the bare ground surface should not be more than 10 percent exposed. Reapply mulch, as needed, to cover bare areas.

MU-2 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 June 2012

Temporary and Permanent Seeding (TS/PS)

EC-2

Table TS/PS-2. Minimum Drill Seeding Rates for Perennial Grasses (cont.)

Common Name	Botanical Name	Growth Season ^a	Growth Form	Seeds/ Pound	Pounds of PLS/acre
Sandy Soil Seed Mix					
Blue grama	<i>Bouteloua gracilis</i>	Warm	Sod-forming bunchgrass	825,000	0.5
Camper little bluestem	<i>Schizachyrium scoparium 'Camper'</i>	Warm	Bunch	240,000	1.0
Prairie sandreed	<i>Calamovilfa longifolia</i>	Warm	Open sod	274,000	1.0
Sand dropseed	<i>Sporobolus cryptandrus</i>	Cool	Bunch	5,298,000	0.25
Vaughn sidecoats grama	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					10.25
Heavy Clay, Rocky Foothill Seed Mix					
Ephraim crested wheatgrass ^b	<i>Agropyron cristatum 'Ephraim'</i>	Cool	Sod	175,000	1.5
Oahe intermediate wheatgrass	<i>Agropyron intermedium 'Oahe'</i>	Cool	Sod	115,000	5.5
Vaughn sidecoats grama ^c	<i>Bouteloua curtipendula 'Vaughn'</i>	Warm	Sod	191,000	2.0
Lincoln smooth brome	<i>Bromus inermis leysii 'Lincoln'</i>	Cool	Sod	130,000	3.0
Arriba western wheatgrass	<i>Agropyron smithii 'Arriba'</i>	Cool	Sod	110,000	5.5
Total					17.5

^a All of the above seeding mixes and rates are based on drill seeding followed by crimped straw mulch. These rates should be doubled if seed is broadcast and should be increased by 50 percent if the seeding is done using a Brillion Drill or is applied through hydraulic seeding. Hydraulic seeding may be substituted for drilling only where slopes are steeper than 3:1. If hydraulic seeding is used, hydraulic mulching should be done as a separate operation.

^b See Table TS/PS-3 for seeding dates.

^c If site is to be irrigated, the transition turf seed rates should be doubled.

^d Crested wheatgrass should not be used on slopes steeper than 6H to 1V.

^e Can substitute 0.5 lbs PLS of blue grama for the 2.0 lbs PLS of Vaughn sidecoats grama.

June 2012 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 TS/PS-5

EC-2 Temporary and Permanent Seeding (TS/PS)

Table TS/PS-3. Seeding Dates for Annual and Perennial Grasses

Seeding Dates	Annual Grasses (Numbers in table reference species in Table TS/PS-1)		Perennial Grasses	
	Warm	Cool	Warm	Cool
January 1–March 15			✓	✓
March 16–April 30	4	1,2,3	✓	✓
May 1–May 15	4		✓	
May 16–June 30	4,5,6,7			
July 1–July 15	5,6,7			
July 16–August 31				
September 1–September 30		8,9,10,11		
October 1–December 31			✓	✓

Mulch

Cover seeded areas with mulch or an appropriate rolled erosion control product to promote establishment of vegetation. Anchor mulch by crimping, netting or use of a non-toxic tackifier. See the Mulching BMP Fact Sheet for additional guidance.

Maintenance and Removal

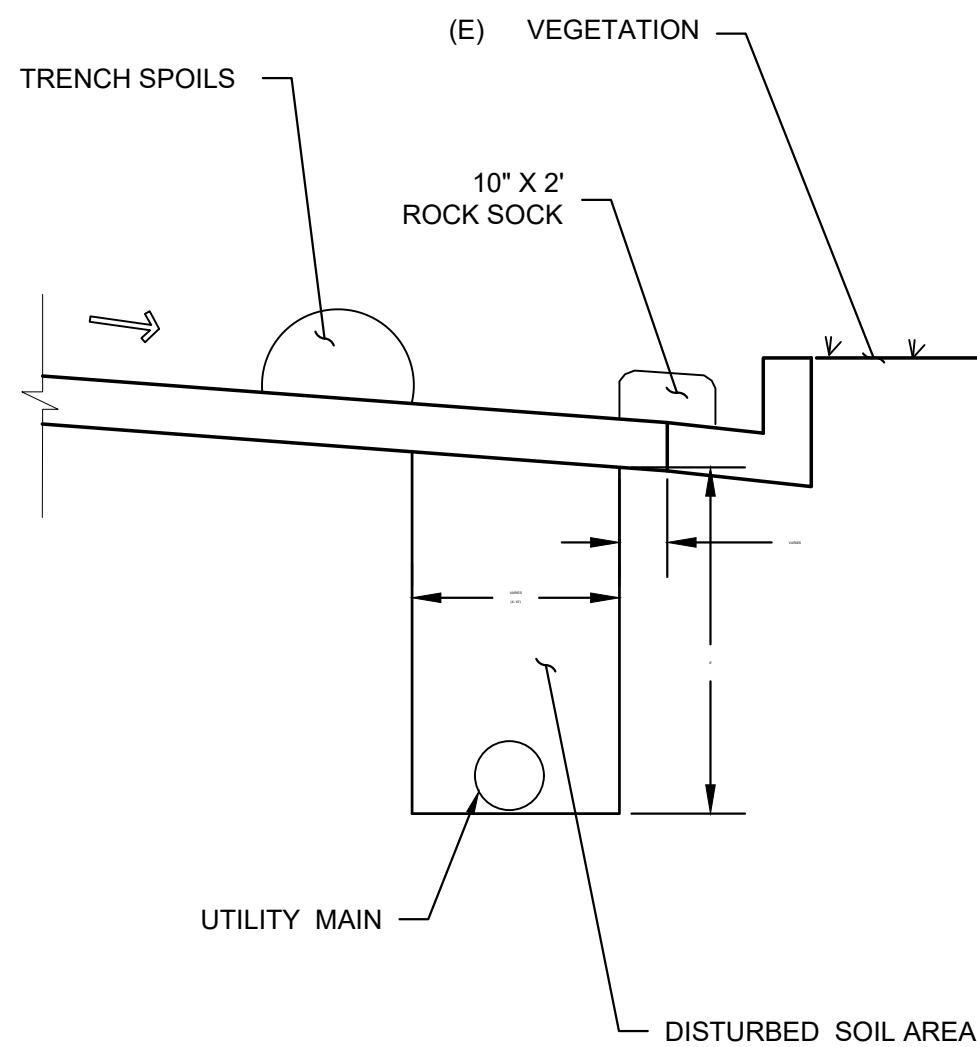
Monitor and observe seeded areas to identify areas of poor growth or areas that fail to germinate. Reseed and mulch these areas, as needed.

An area that has been permanently seeded should have a good stand of vegetation within one growing season if irrigated and within three growing seasons without irrigation in Colorado. Reseed portions of the site that fail to germinate or remain bare after the first growing season.

Seeded areas may require irrigation, particularly during extended dry periods. Targeted weed control may also be necessary.

Protect seeded areas from construction equipment and vehicle access.

TS/PS-6 Urban Drainage and Flood Control District
Urban Storm Drainage Criteria Manual Volume 3 June 2012



TYPICAL TRENCH SECTION
SP-1
NOT TO SCALE

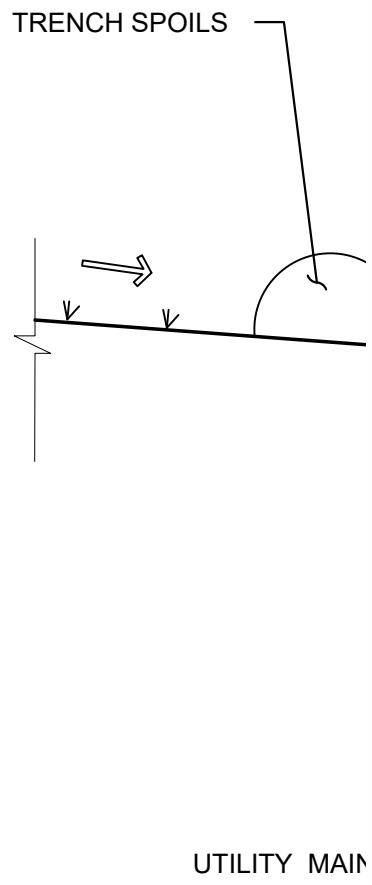
Please include ECM SD_4-20 for any trenches in asphalt roadways
Please include intended dimensions of the trench

Where more than half of a paved lane will be removed for the T-cap replacement, the entire lane will need to be repaved. If the T-cap sawcut line is in the wheel path of the lane, the whole lane will be required to be repaved.

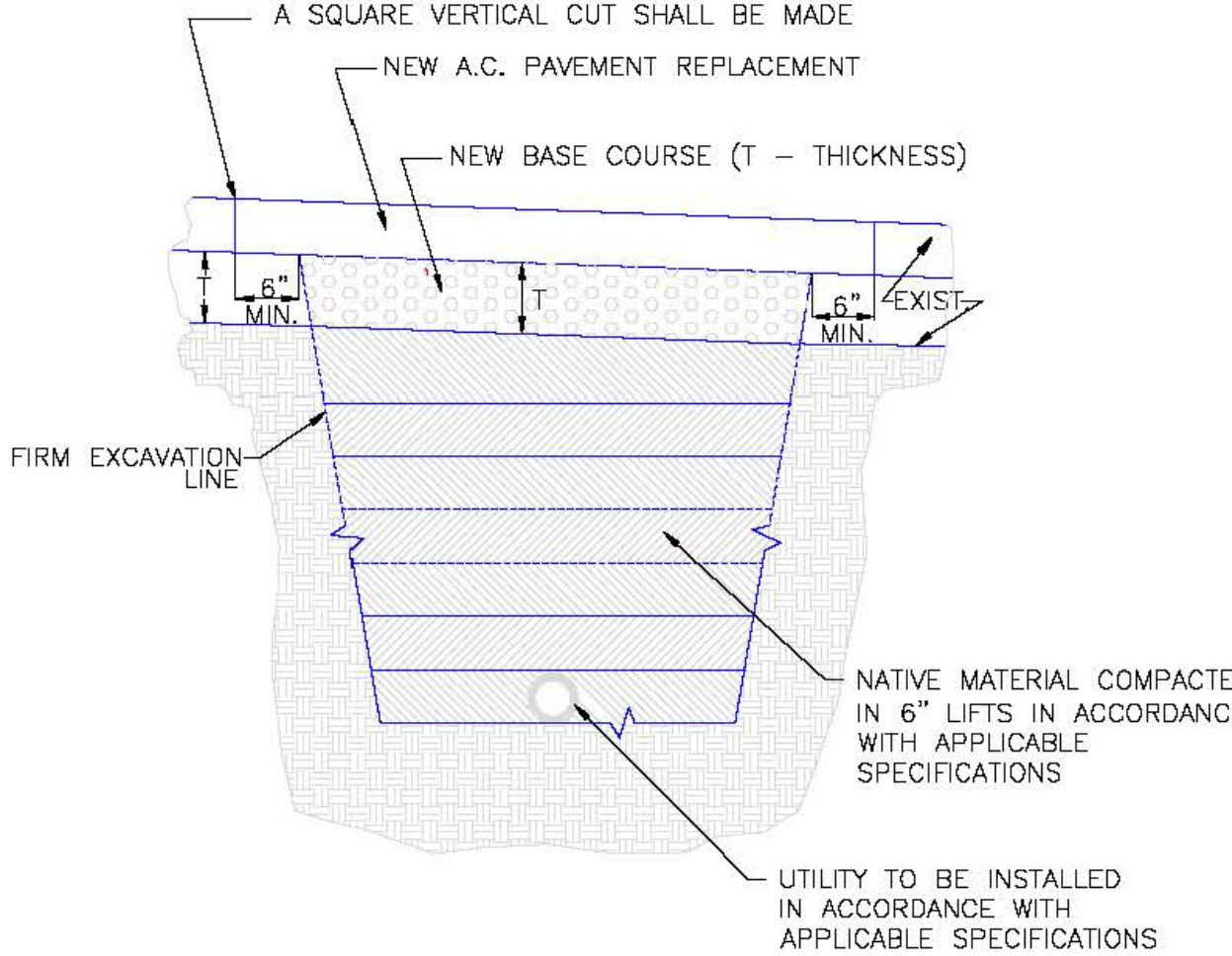
MATERIALS STAGING IN ROADWAY MAINTENANCE NOTES:

- INSPECT BMPs EACH WORKDAY, AND MAINTAIN THEM IN MAINTENANCE OF BMPs SHOULD BE PROACTIVE, NOT REACTIVE POSSIBLE (AND ALWAYS WITHIN 24 HOURS) FOLLOWING A AND PERFORM NECESSARY MAINTENANCE.
- FREQUENT OBSERVATIONS AND MAINTENANCE ARE NECESSARY FOR OPERATING CONDITION. INSPECTIONS AND CORRECTIVE MAINTENANCE SHOULD BE THOROUGHLY.
- WHERE BMPs HAVE FAILED, REPAIR OR REPLACEMENT SHOULD BE PROMPTLY.
- INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND PROMPTLY.
- CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR BLOWING.

NOTE: MANY JURISDICTIONS HAVE BMP DETAILS THAT VARY FROM LOCAL JURISDICTIONS AS TO WHICH DETAIL SHOULD BE USED V



TYPIC



NOTES:

- THIS DETAIL MAY BE USED FOR PAVEMENT CUTS LESS THAN 200 SQ. FT.
- EXISTING PAVEMENT MAY BE ROUGH CUT INITIALLY IN CONJUNCTION WITH TRENCHING.
- A SQUARE VERTICAL CUT SHALL BE MADE IN THE EXISTING A.C. PAVEMENT AFTER PLACEMENT OF BACKFILL PRIOR TO PAVEMENT REPLACEMENT.
- THICKNESS OF NEW A.C. PAVEMENT REPLACEMENT SHALL MATCH EXISTING (4" MIN.)
- THICKNESS OF NEW BASE COURSE SHALL BE MINIMUM OF 6" OR EQUAL TO EXISTING, WHICHEVER IS GREATER.

SCALE: NOT TO SCALE

8/11/11		Utility Trench Repair Detail Asphalt Pavement Standard Drawing		
DATE APPROVED:				
André P. Brackin				
DEPARTMENT OF TRANSPORTATION		REVISION DATE: 11/10/04	FILE NAME: SD_4-20	