

MARKSHEFFEL CONNECTOR

16IN HIGH PRESSURE GAS MAIN

GRADING, EROSION AND STORMWATER QUALITY CONTROL PLAN

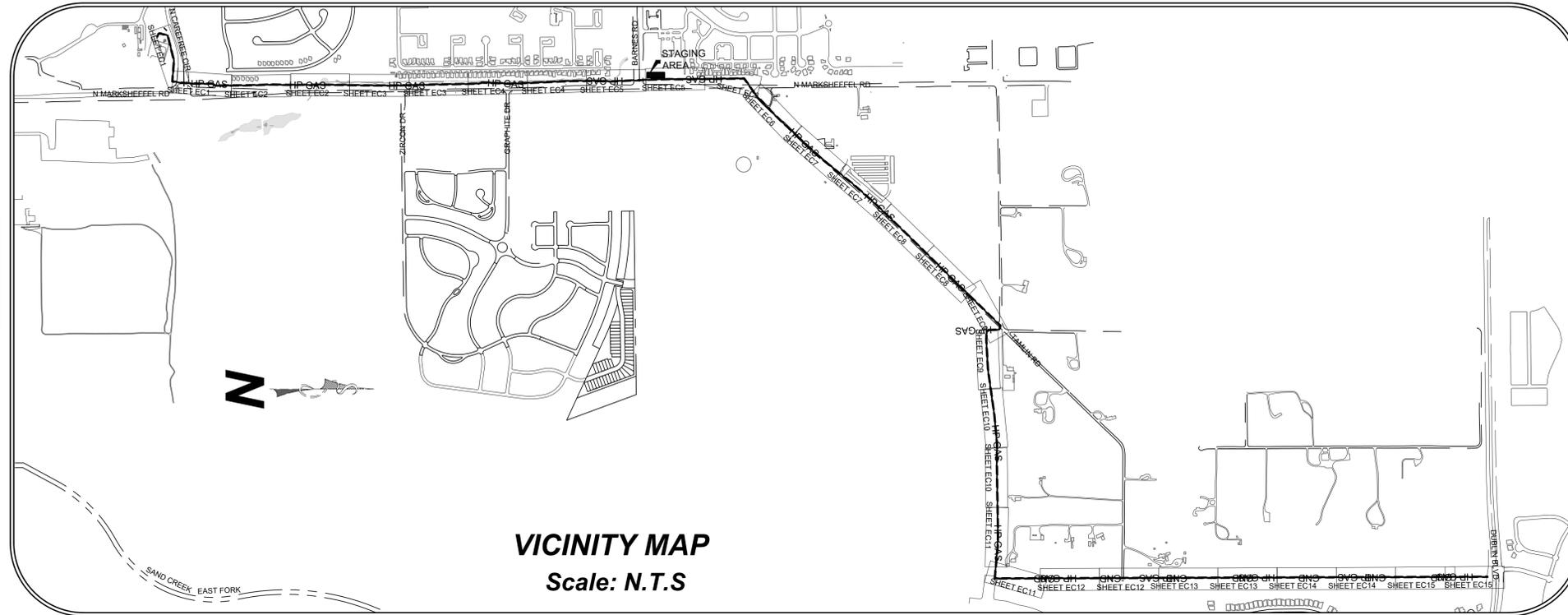


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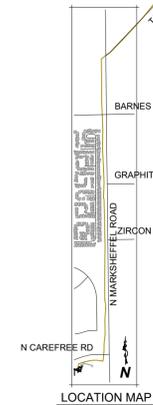
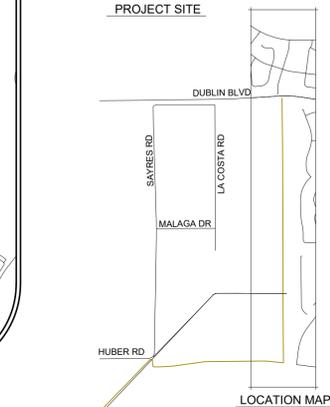


PRC ENGINEERING
1685 W. UINTAH ST., SUITE 114
COLORADO SPRINGS, CO 80904
(719) 291-2744

SHEET INDEX	
TS1	COVERSHEET
GN1	GENERAL NOTES
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MARKSHEFFEL CONNECTOR



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:

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 Hiatt
 TITLE: Randy Hiatt - General Manager

DATE: 05/22/24

PHONE NUMBER: 719-325-9984

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

EMAIL ADDRESS: Randy.Hiatt@millerpipeline.com

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 VOLUMES 1 AND 2, 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 PASO 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.

FOR THE COUNTY ENGINEER _____ DATE _____

NOTES:

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

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



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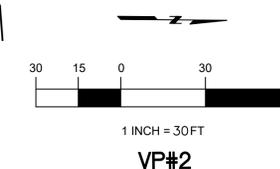
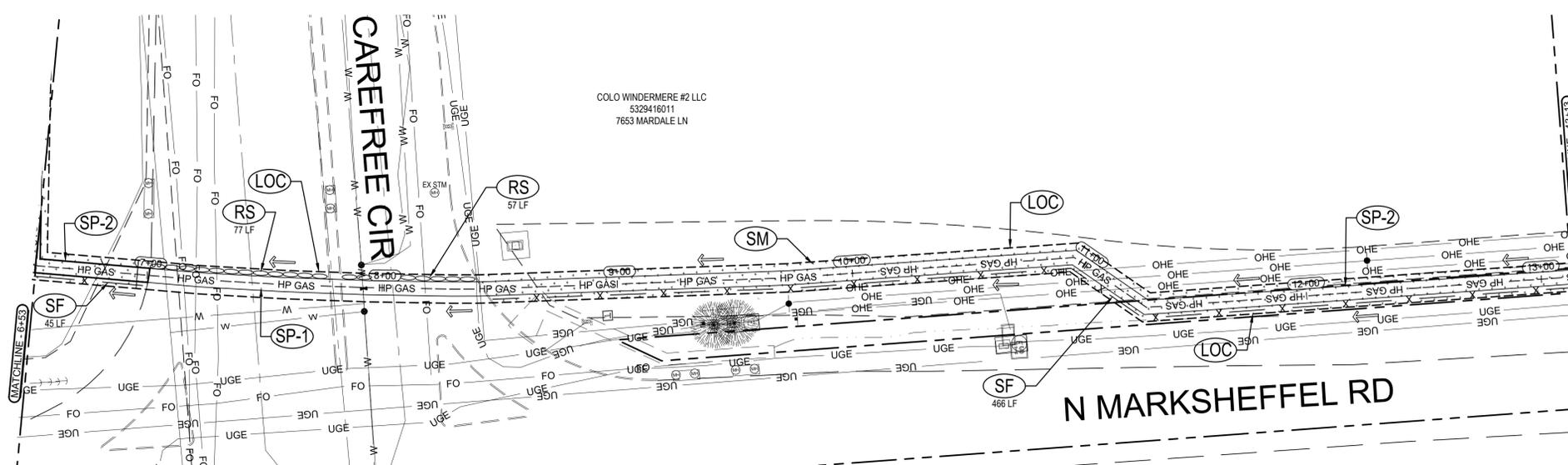
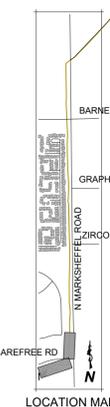
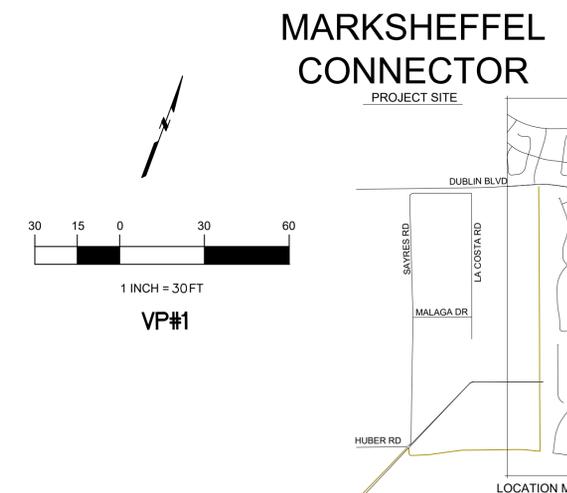
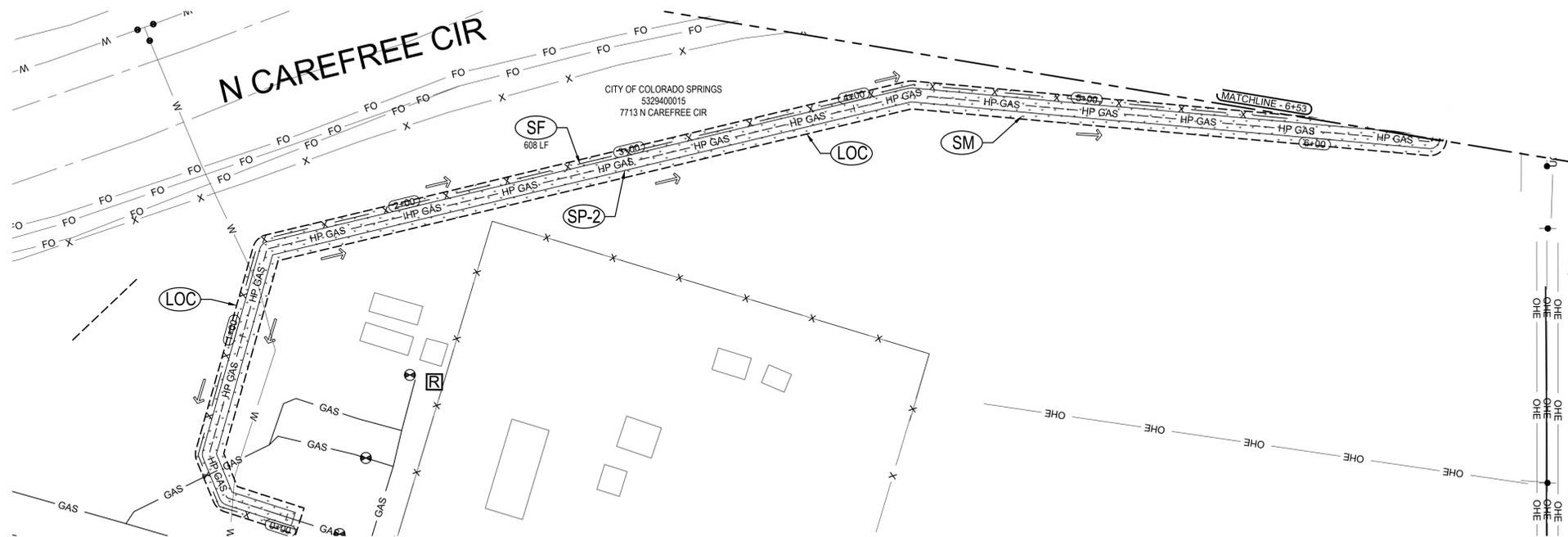


GESC PLAN
MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

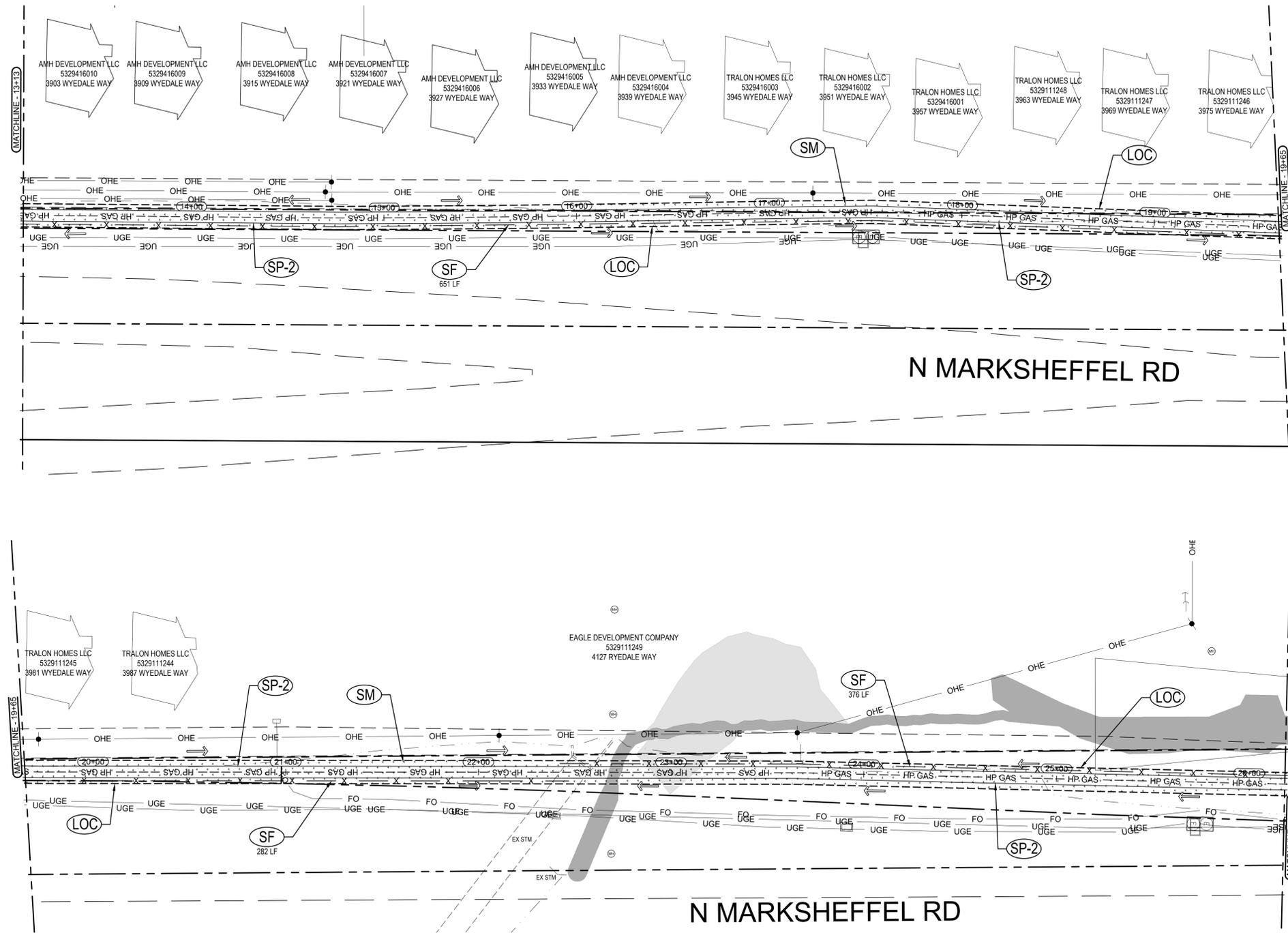
EROSION CONTROL PLAN

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EC1
sheet number



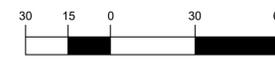
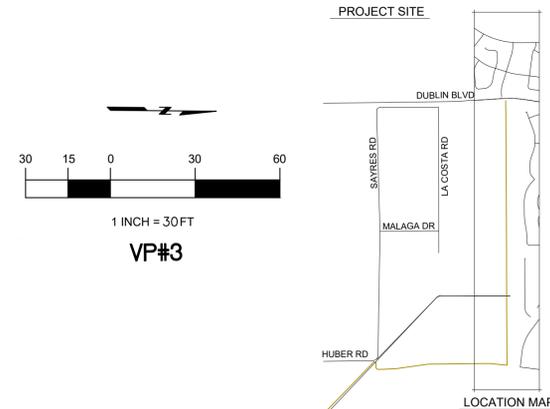
LEGEND			
---	EXISTING ROW/PROPERTY LINE	⊙	EXISTING SANITARY SEWER
- - -	EXISTING CURB LINE	---	EXISTING WATER
SM	SEEDING AND MULCHING	x	SF SILT FENCE
SP-1 SP-2	MATERIALS STAGING	▭	SOIL DISTURBANCE AREA
RS	ROCK SOCK	→	EXISTING FLOW DIRECTION
LOC	LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE		
IP	INLET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



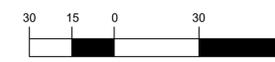
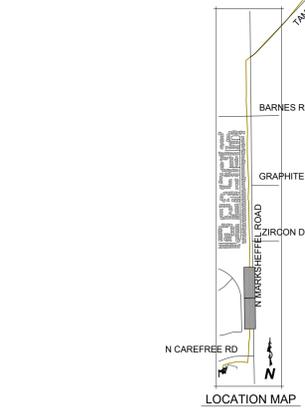
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MARKSHEFFEL CONNECTOR



VP#3



VP#4

LEGEND	
--- (dashed line)	EXISTING ROW/PROPERTY LINE
--- (dotted line)	EXISTING CURB LINE
SM (circle with SM)	SEEDING AND MULCHING
SP-1 (circle with SP-1)	MATERIALS STAGING
SP-2 (circle with SP-2)	MATERIALS STAGING
RS (circle with RS)	ROCK SOCK
LOC (circle with LOC)	LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE
IP (circle with IP)	INLET PROTECTION
W (circle with W)	EXISTING SANITARY SEWER
— (solid line)	EXISTING WATER
x (cross symbol)	SILT FENCE
□ (rectangle)	SOIL DISTURBANCE AREA
→ (arrow)	EXISTING FLOW DIRECTION

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GESC PLAN
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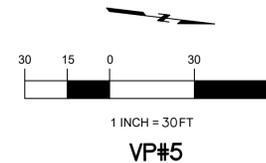
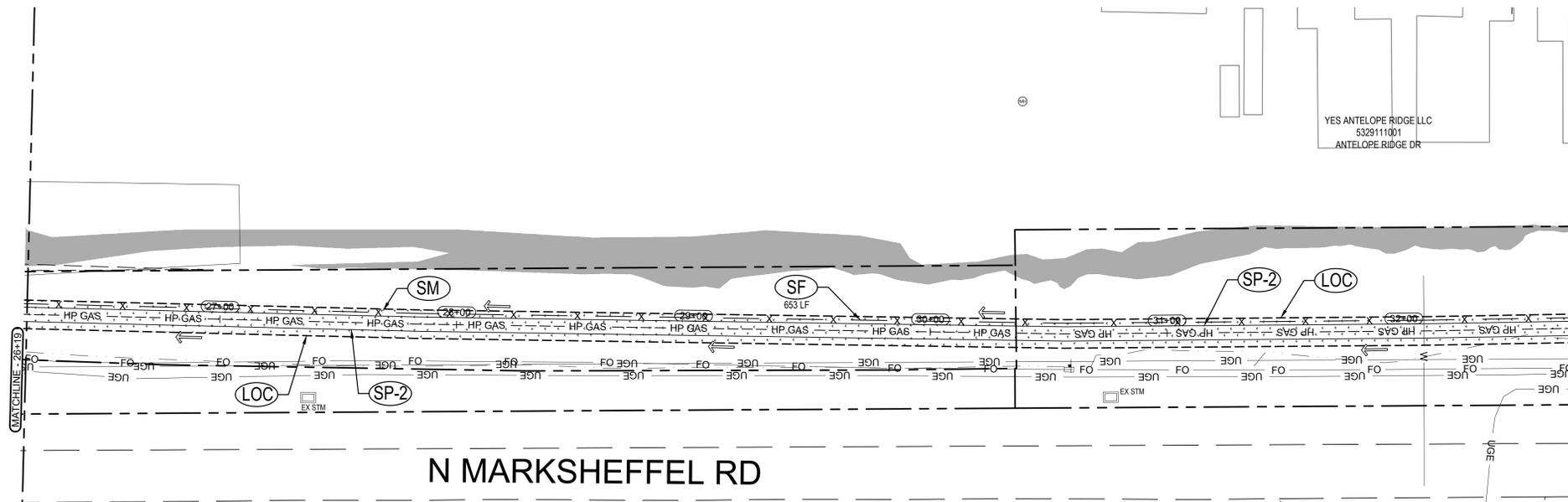


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16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

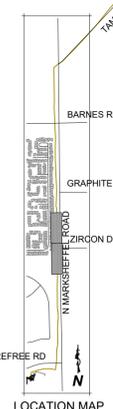
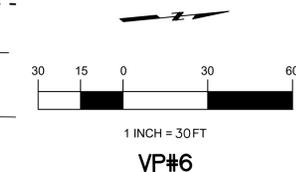
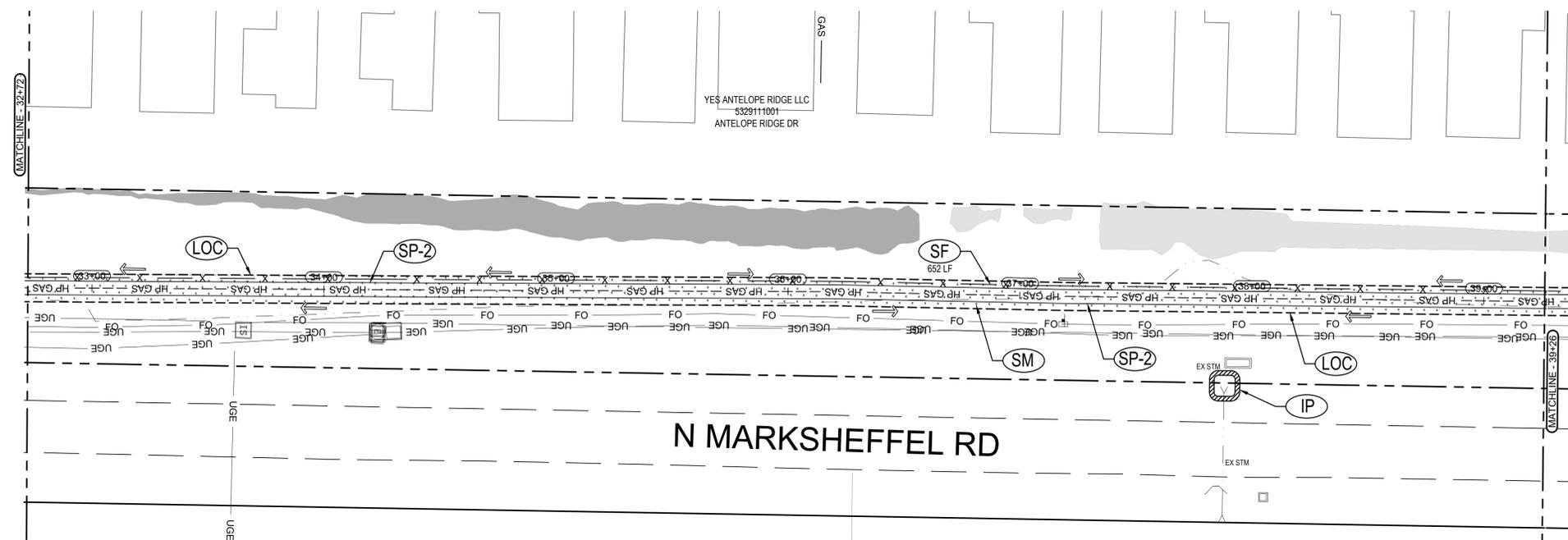
EROSION CONTROL PLAN

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sheet number



MARKSHEFFEL CONNECTOR



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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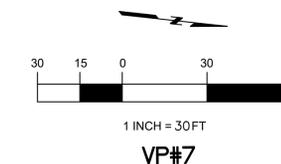
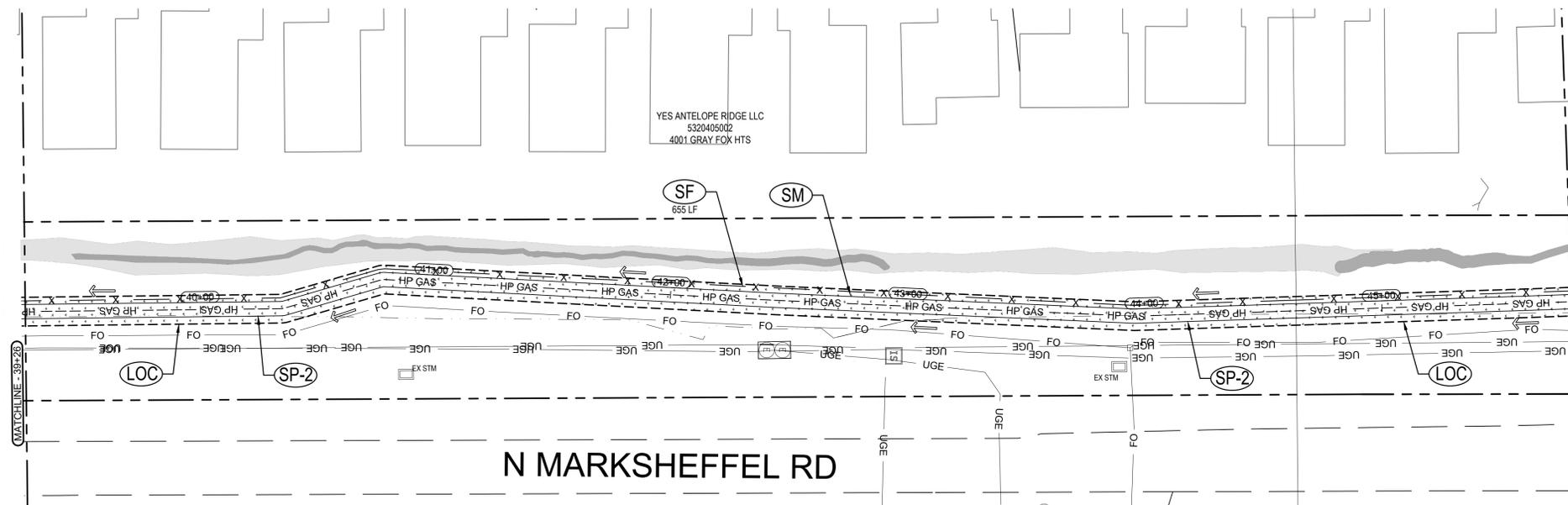


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16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

EROSION CONTROL PLAN

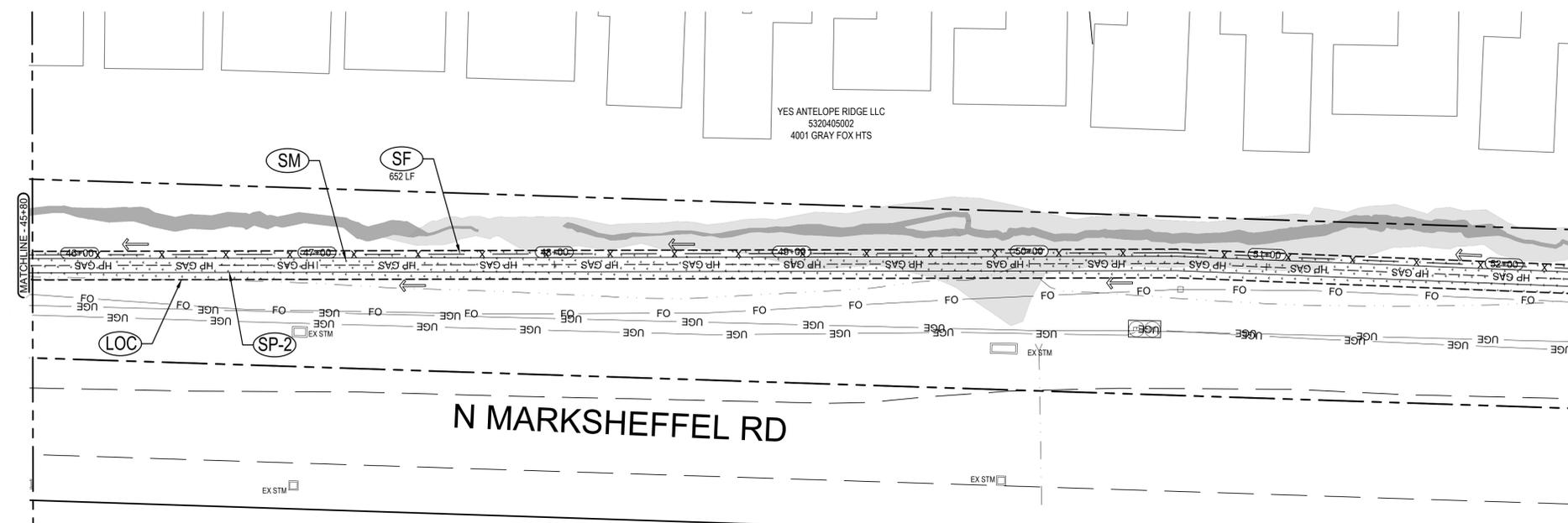
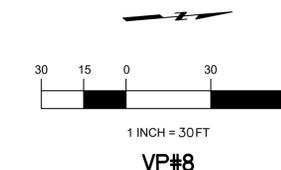
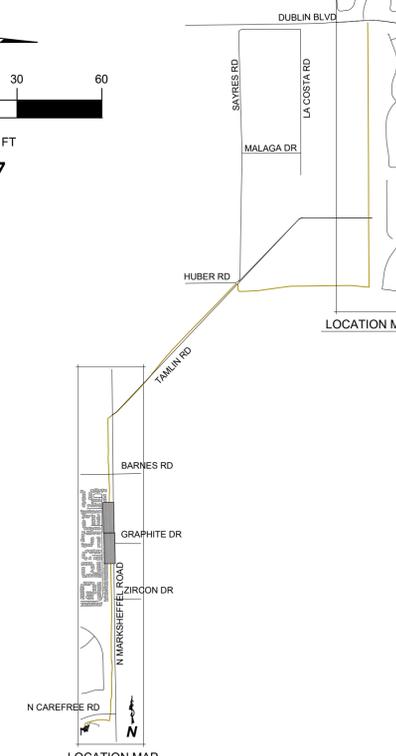
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MARKSHEFFEL CONNECTOR

PROJECT SITE



LEGEND

- EXISTING ROW/PROPERTY LINE
- - - EXISTING 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
- ⊙ EXISTING SANITARY SEWER
- EXISTING WATER
- x SF SILT FENCE
- SOIL DISTURBANCE AREA
- EXISTING FLOW DIRECTION



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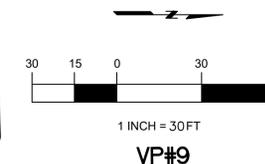


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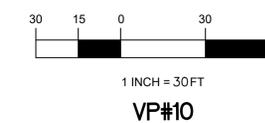
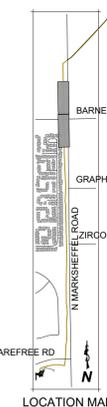
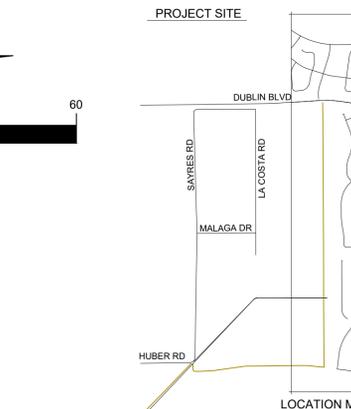


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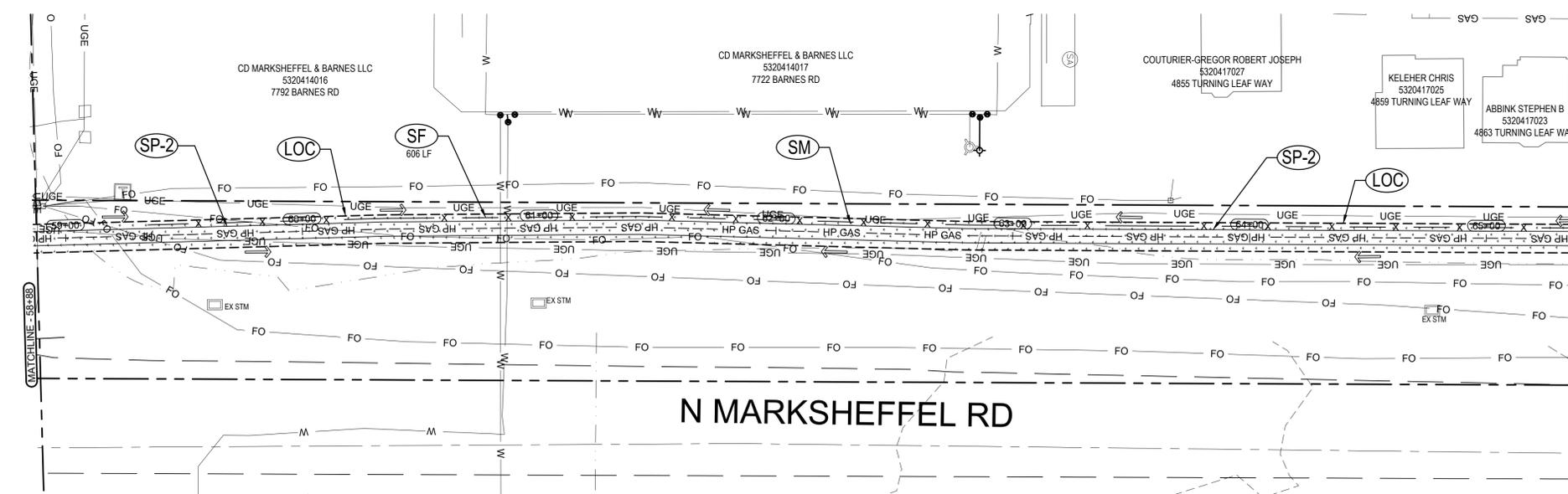
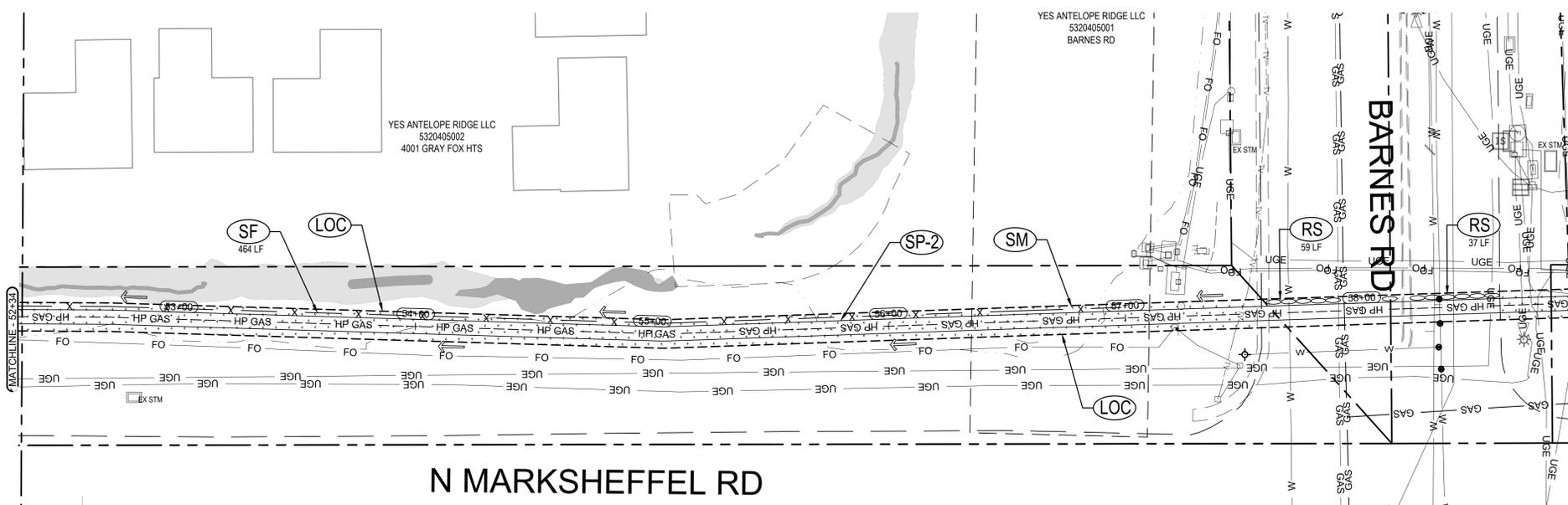
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VP#9



VP#10



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

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

EROSION CONTROL PLAN

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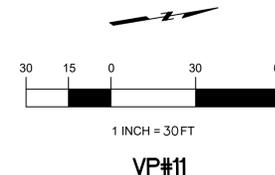
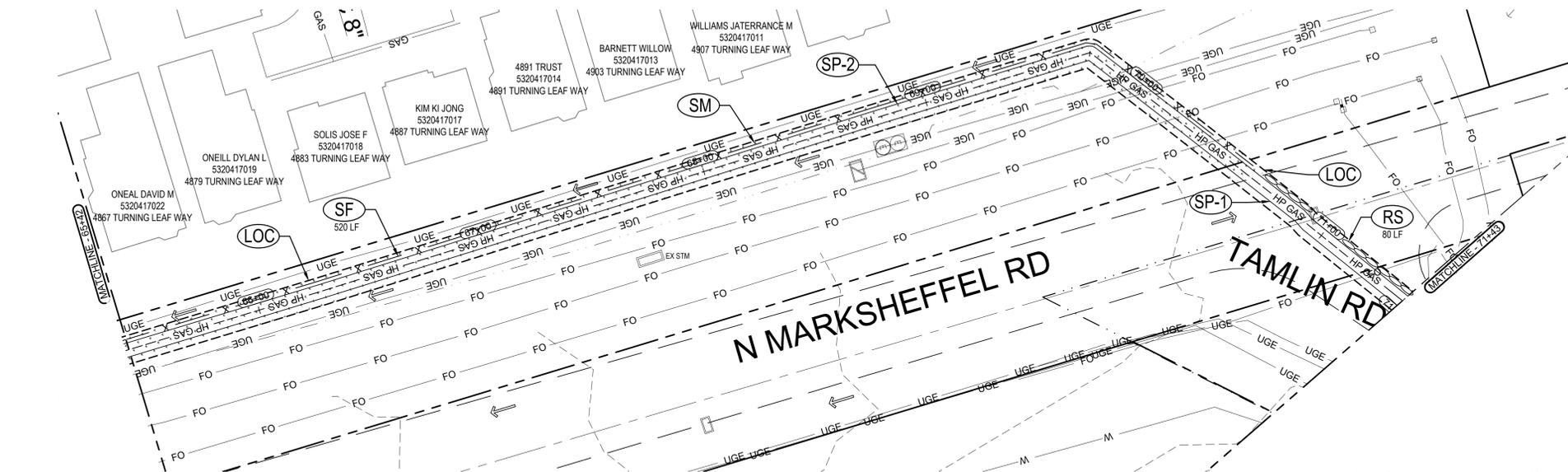


GESC PLAN
MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

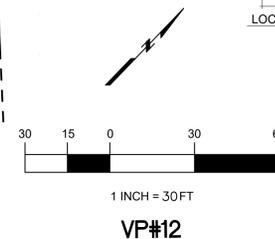
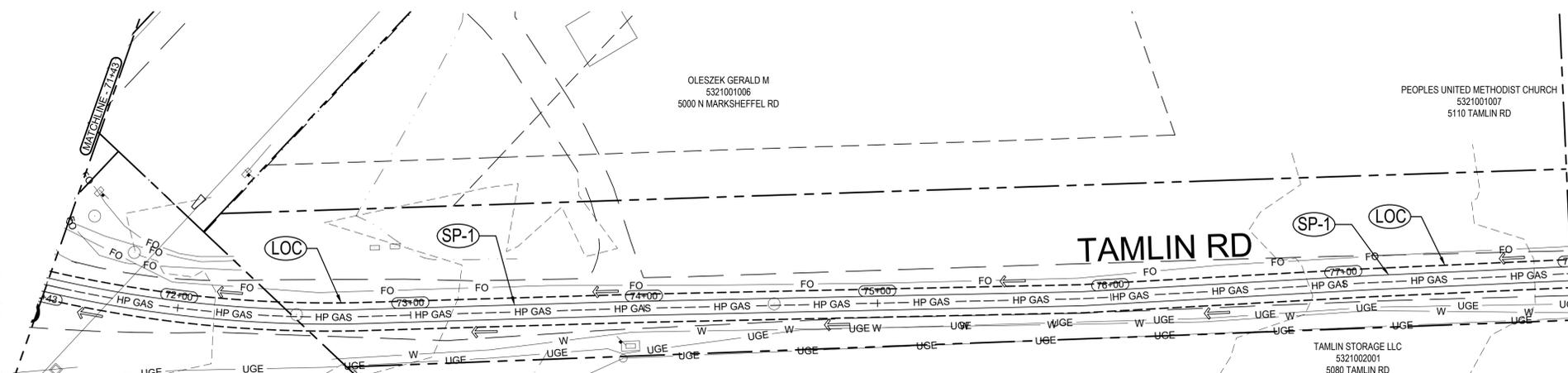
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sheet number



MARKSHEFFEL CONNECTOR
PROJECT SITE



LEGEND

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



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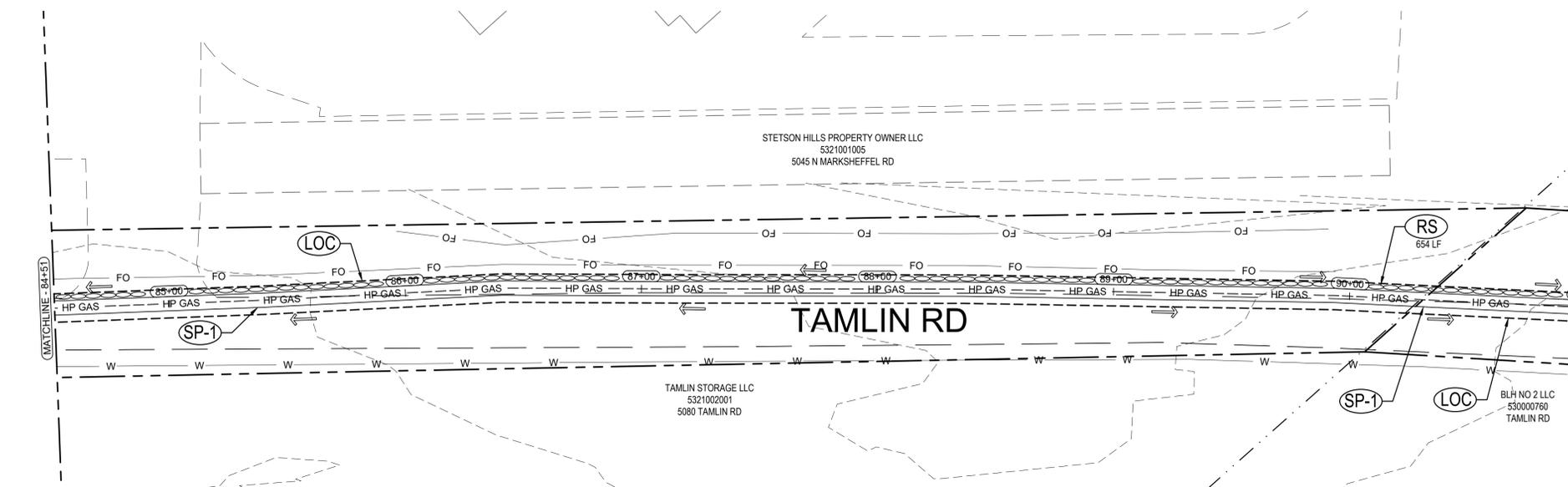
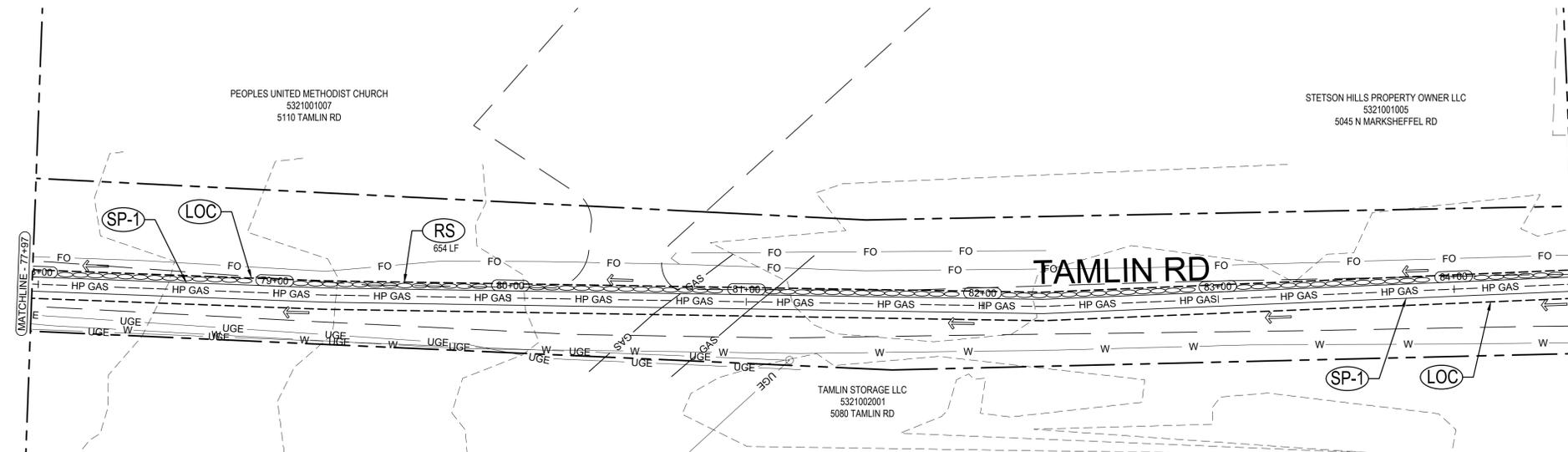
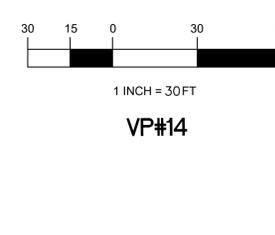
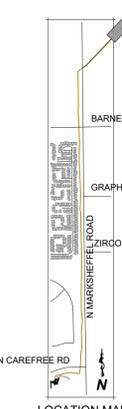
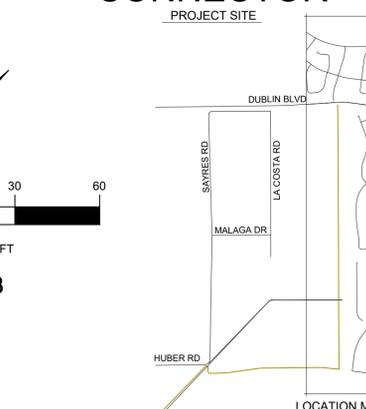
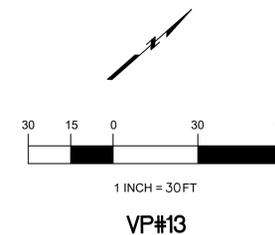


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PROJECT SITE



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

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

EROSION CONTROL PLAN

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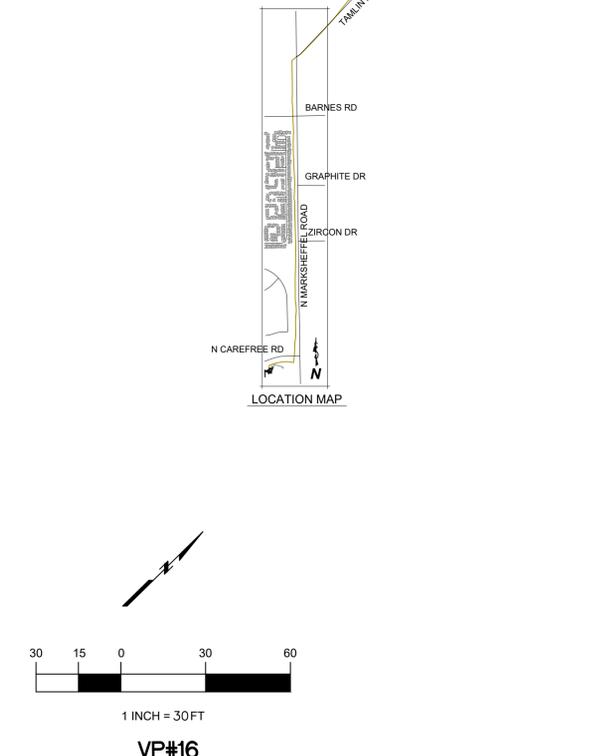
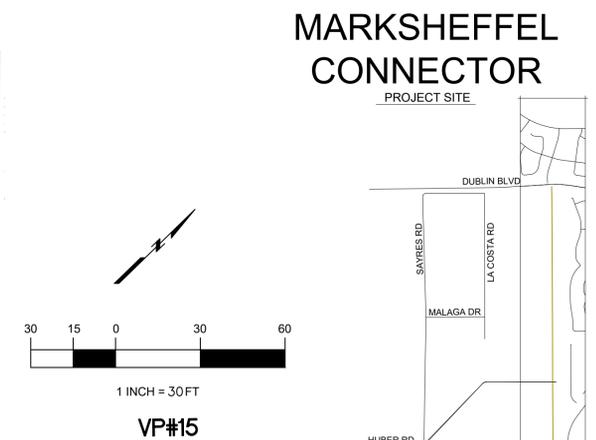
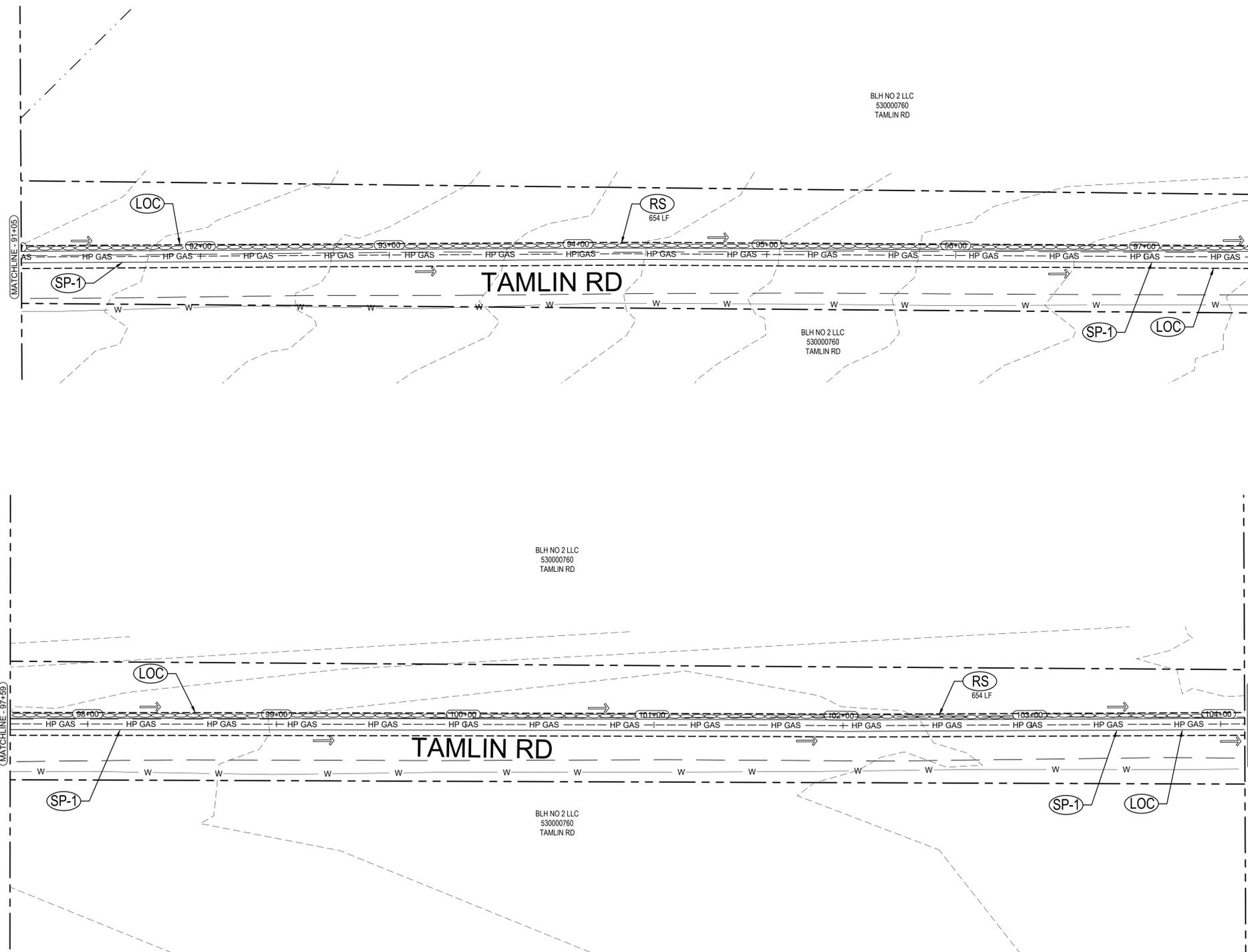


GESC PLAN
MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

EROSION CONTROL PLAN

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EC8
sheet number



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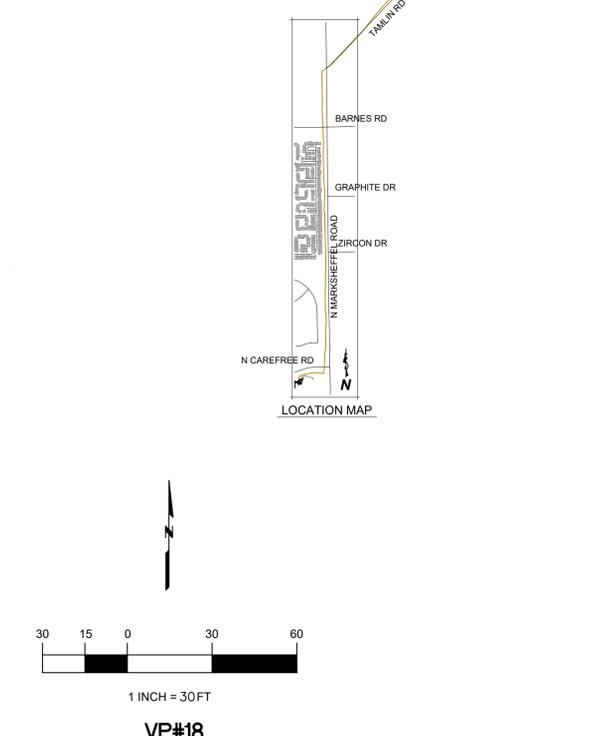
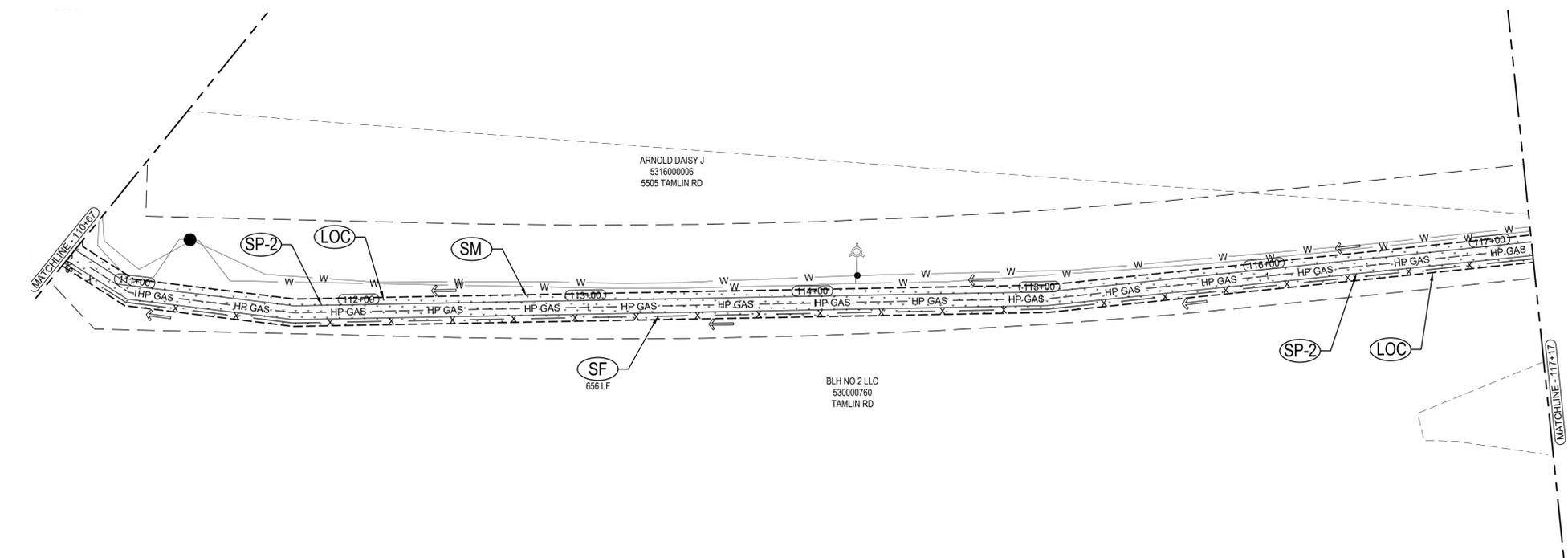
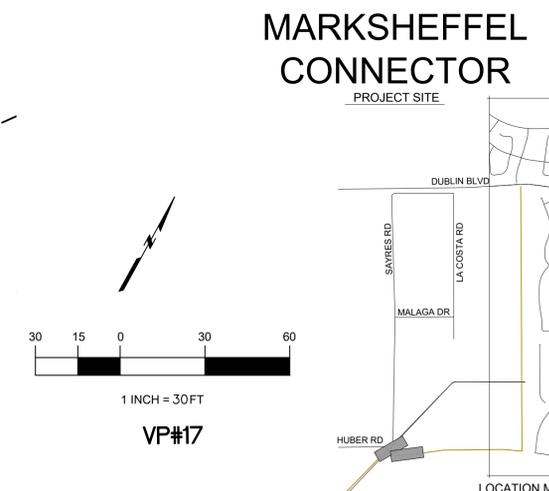
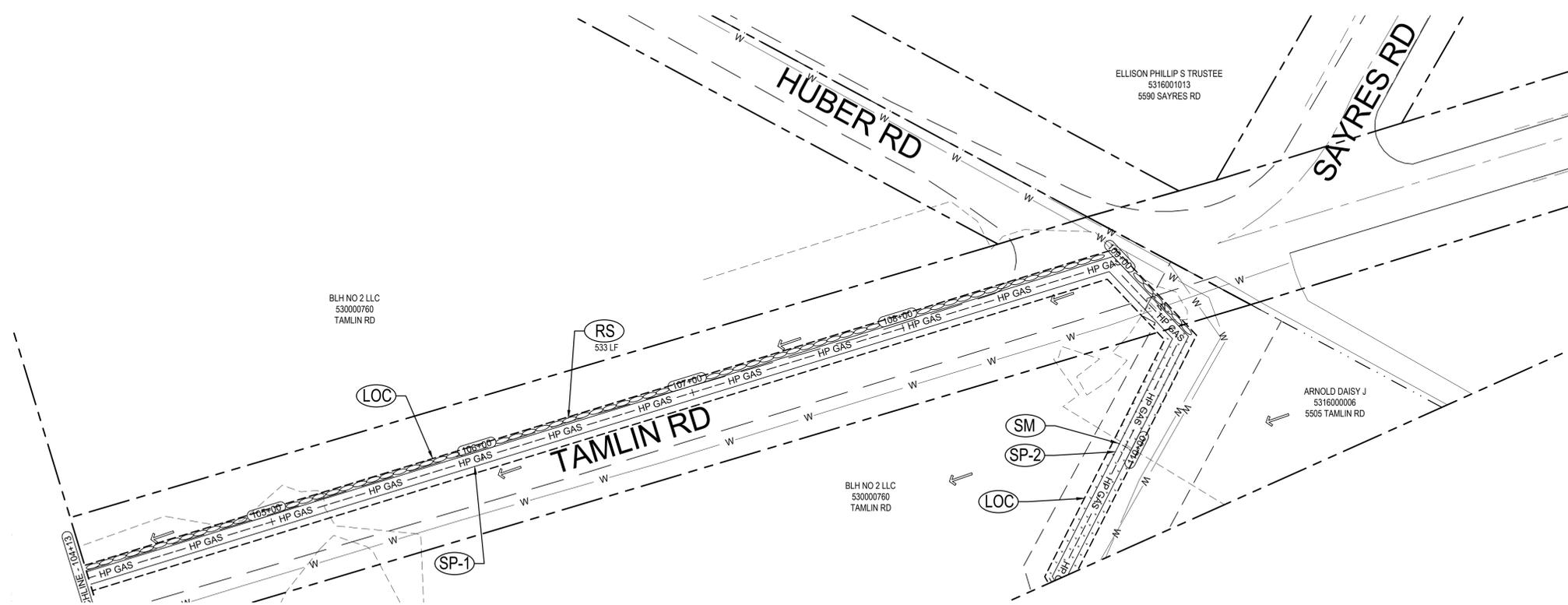
GESC PLAN
MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

EROSION CONTROL PLAN

ISSUED 05/10/24

Blank table for revision history with columns for date and description.

EC9
sheet number



LEGEND

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



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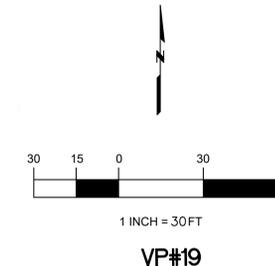
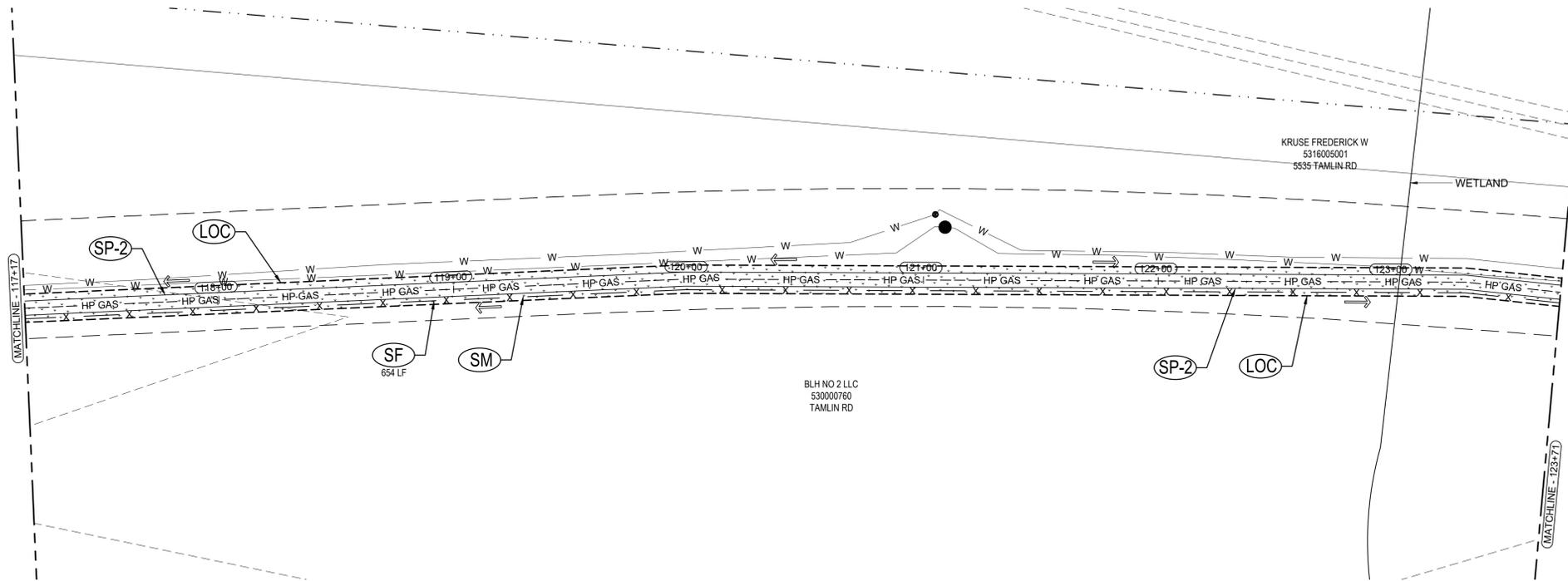


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EL PASO COUNTY, COLORADO

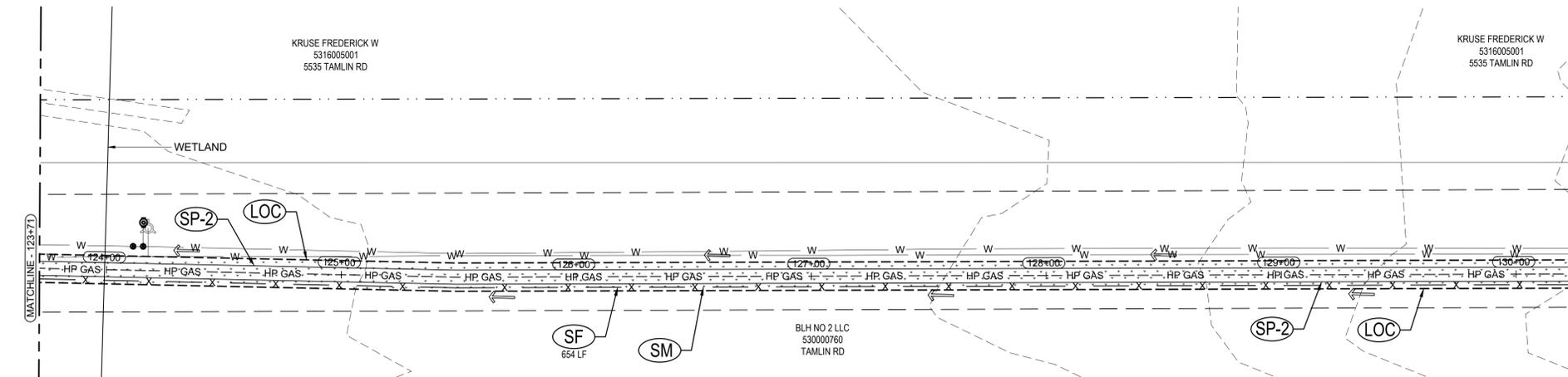
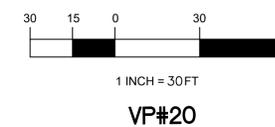
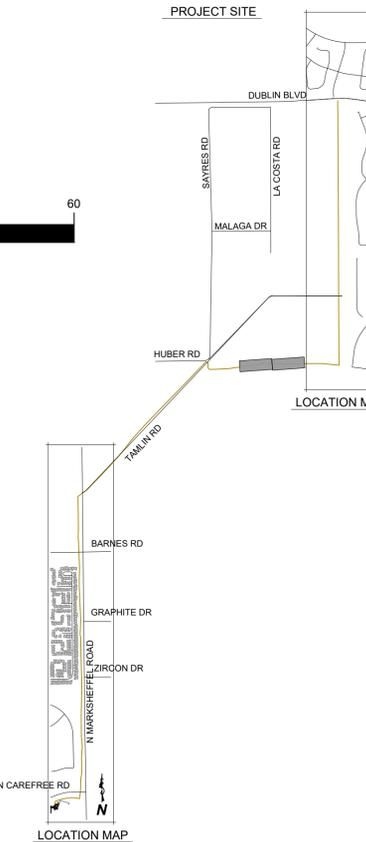
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sheet number



MARKSHEFFEL CONNECTOR
PROJECT SITE



LEGEND

---	EXISTING ROW/PROPERTY LINE	---	EXISTING SANITARY SEWER
- - -	EXISTING CURB LINE	---	EXISTING WATER
SM	SEEDING AND MULCHING	x	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		



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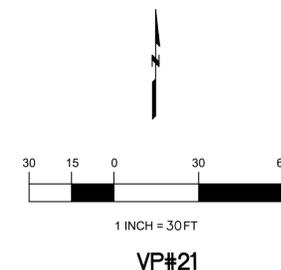
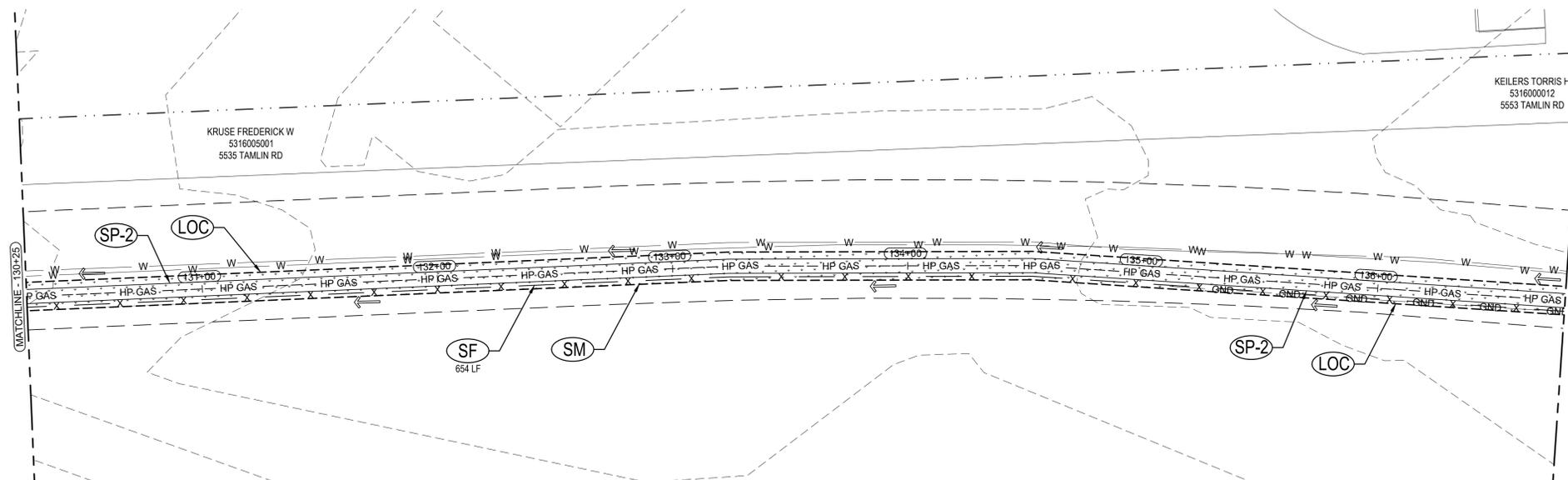


GESC PLAN
MARK SHEFFEL CONNECTOR
16-IN HIGH PRESSURE GAS MAIN
EL PASO COUNTY, COLORADO

EROSION CONTROL PLAN

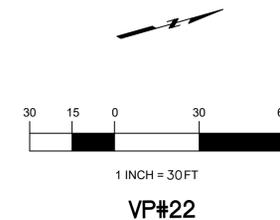
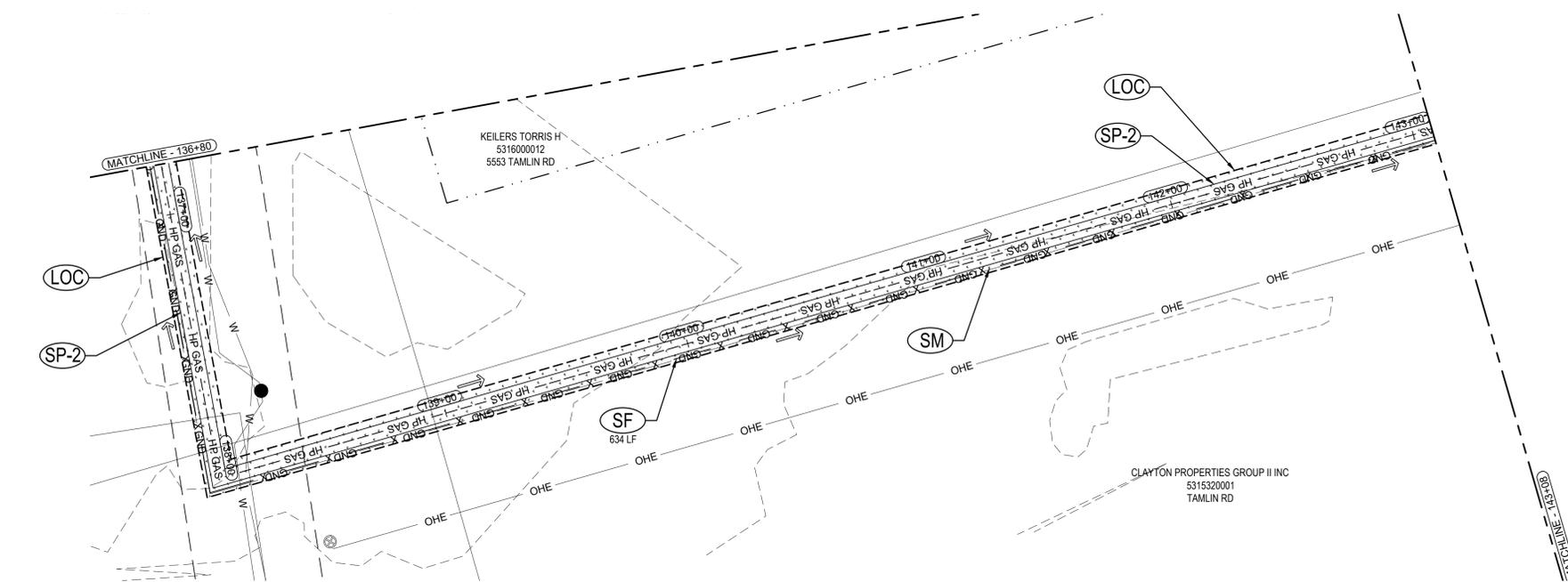
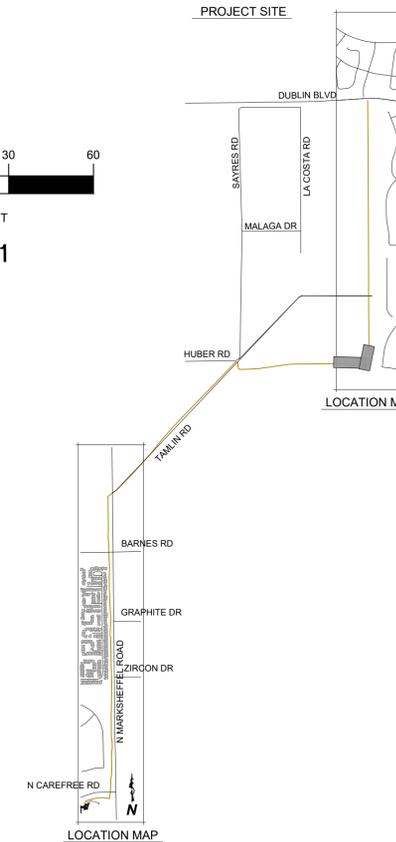
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MARKSHEFFEL CONNECTOR

PROJECT SITE



LEGEND

EXISTING ROW/PROPERTY LINE	EXISTING SANITARY SEWER
EXISTING CURB LINE	EXISTING WATER
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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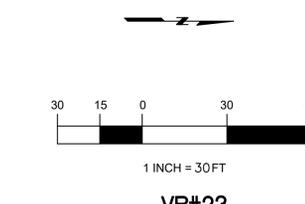
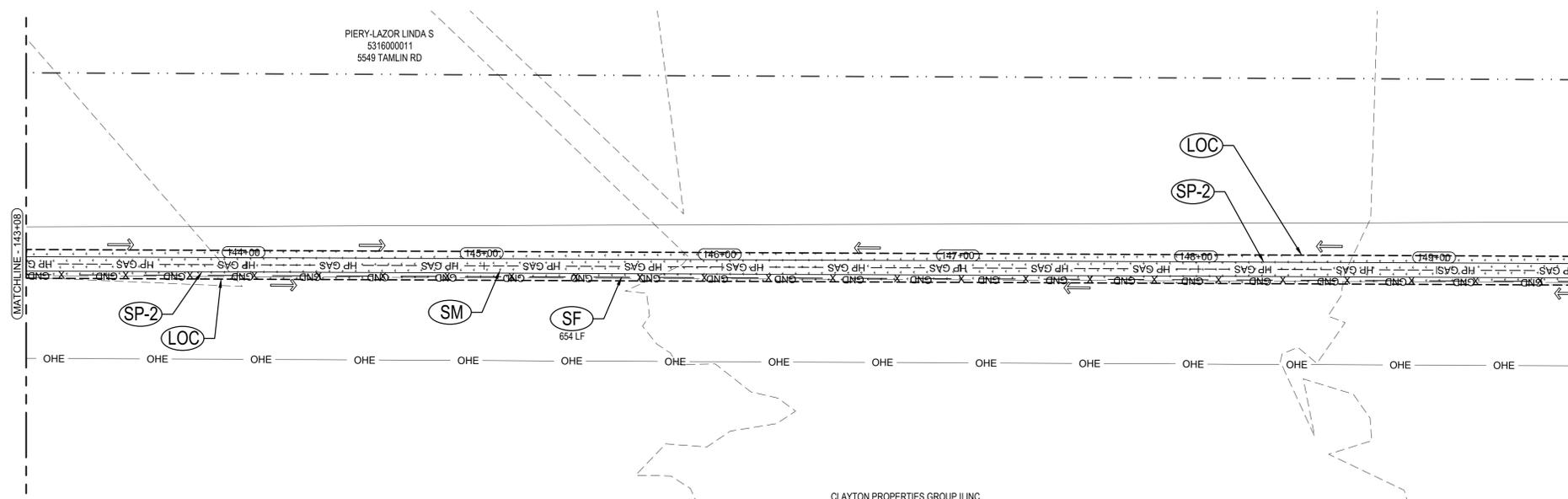


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EL PASO COUNTY, COLORADO

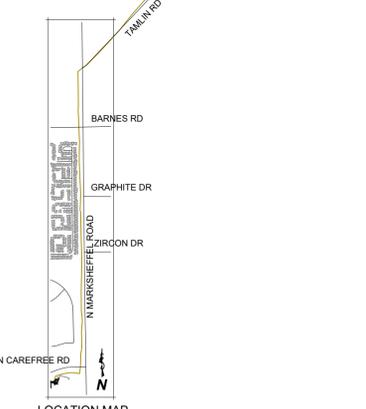
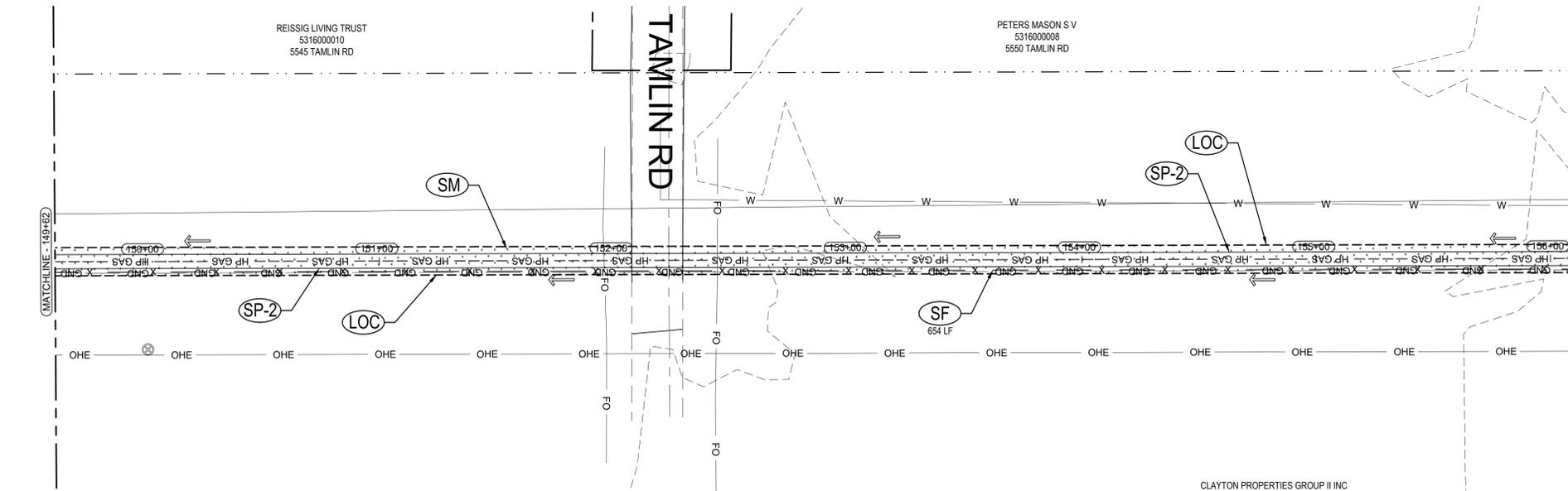
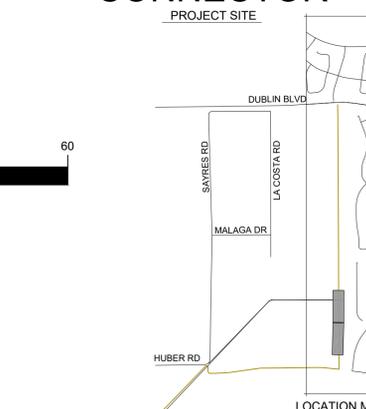
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MARKSHEFFEL CONNECTOR



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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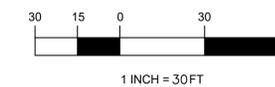
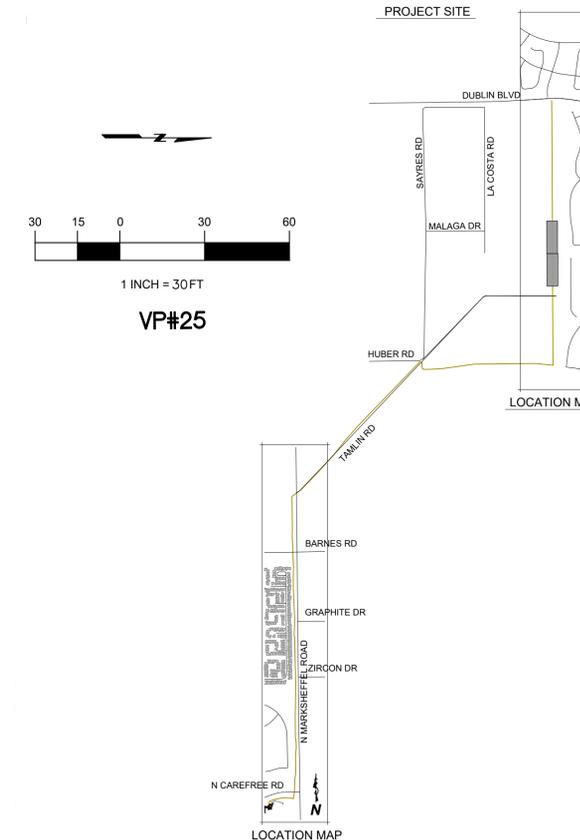
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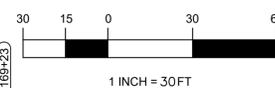
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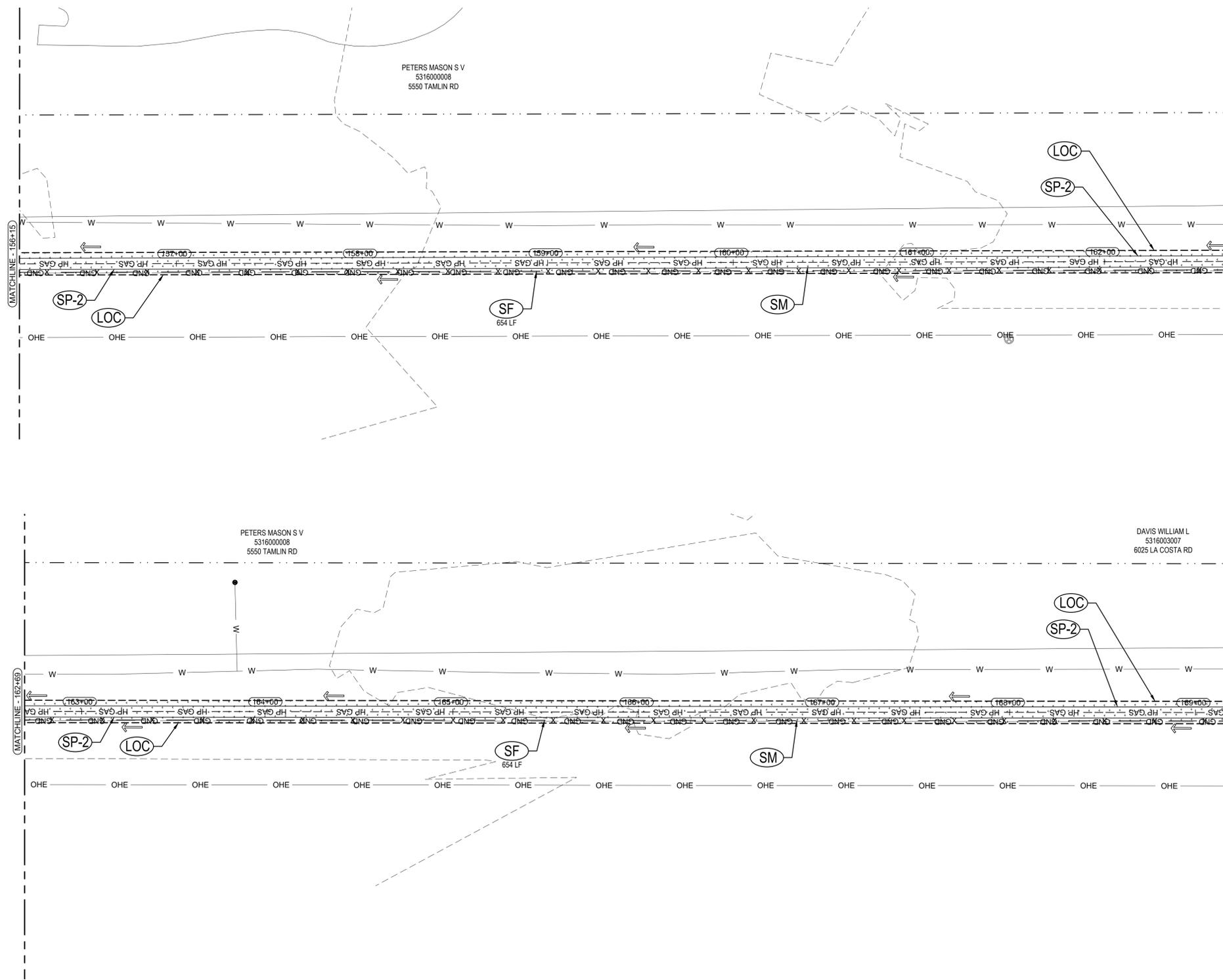
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VP#25



VP#26



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



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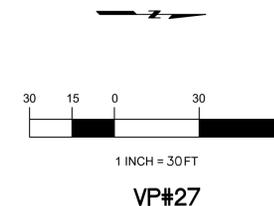
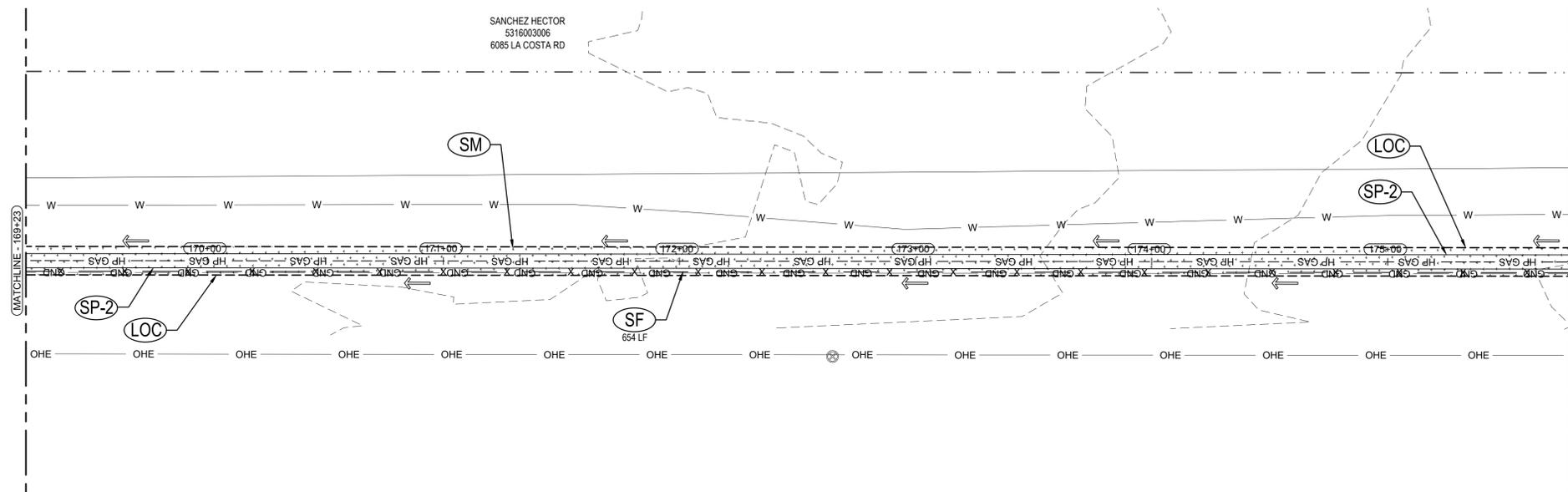


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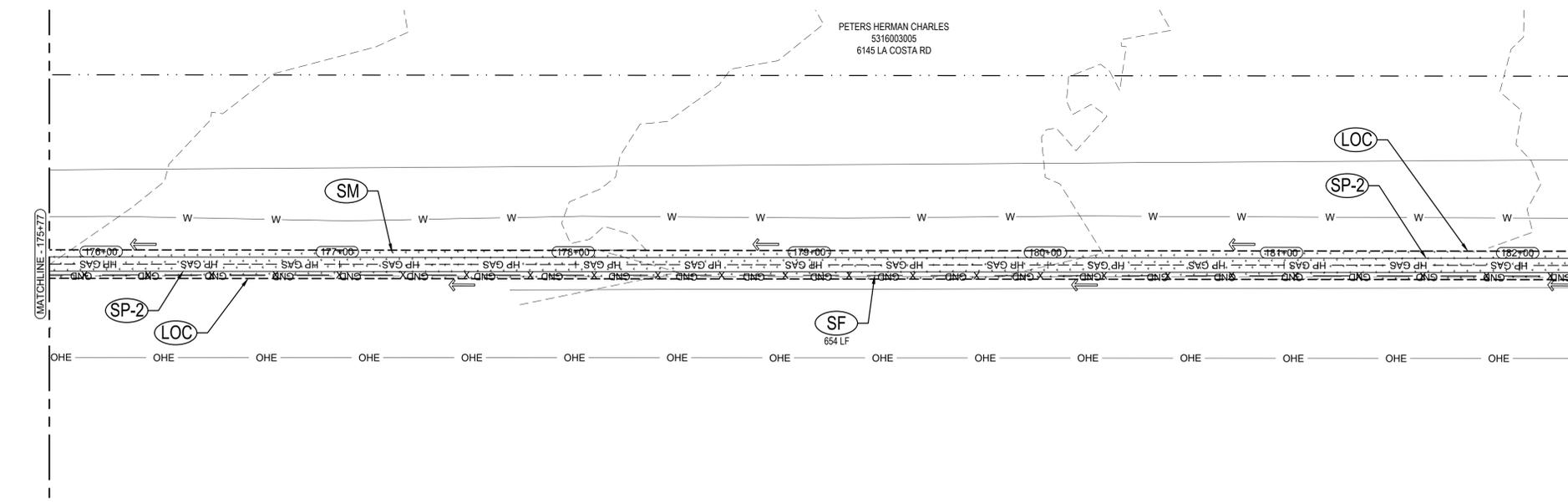
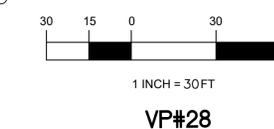
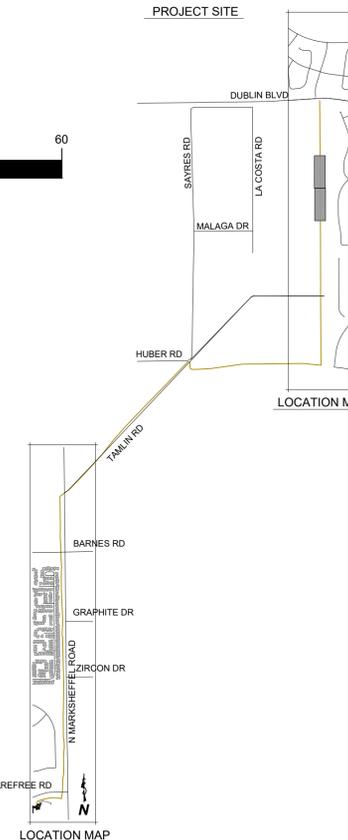
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PROJECT SITE



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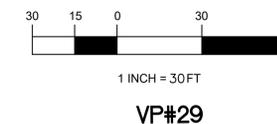
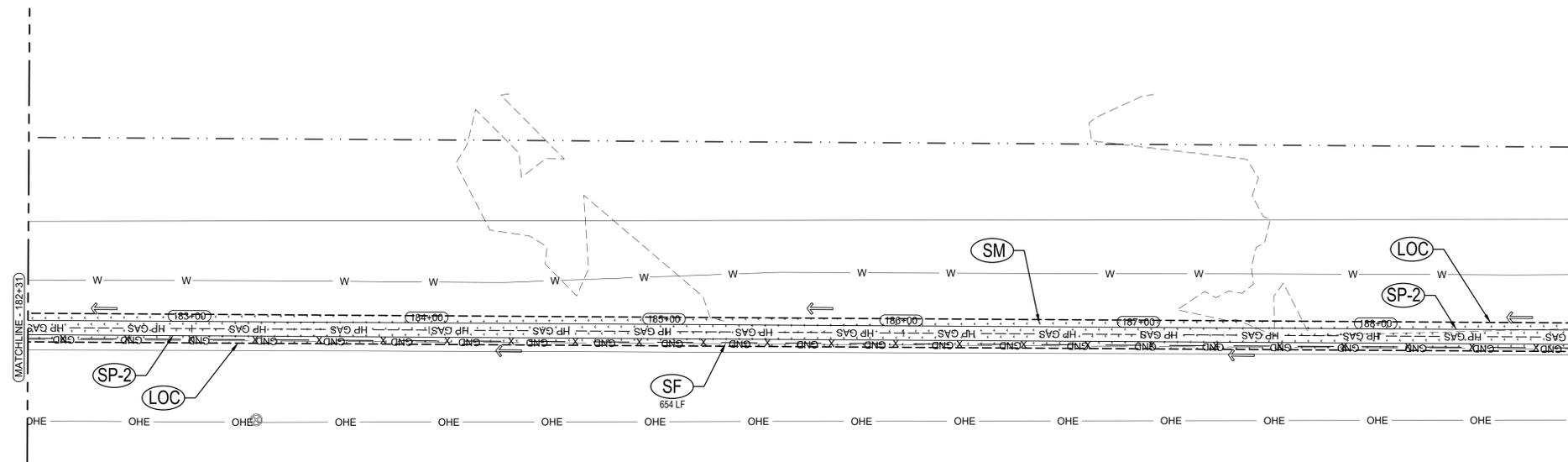
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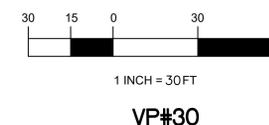
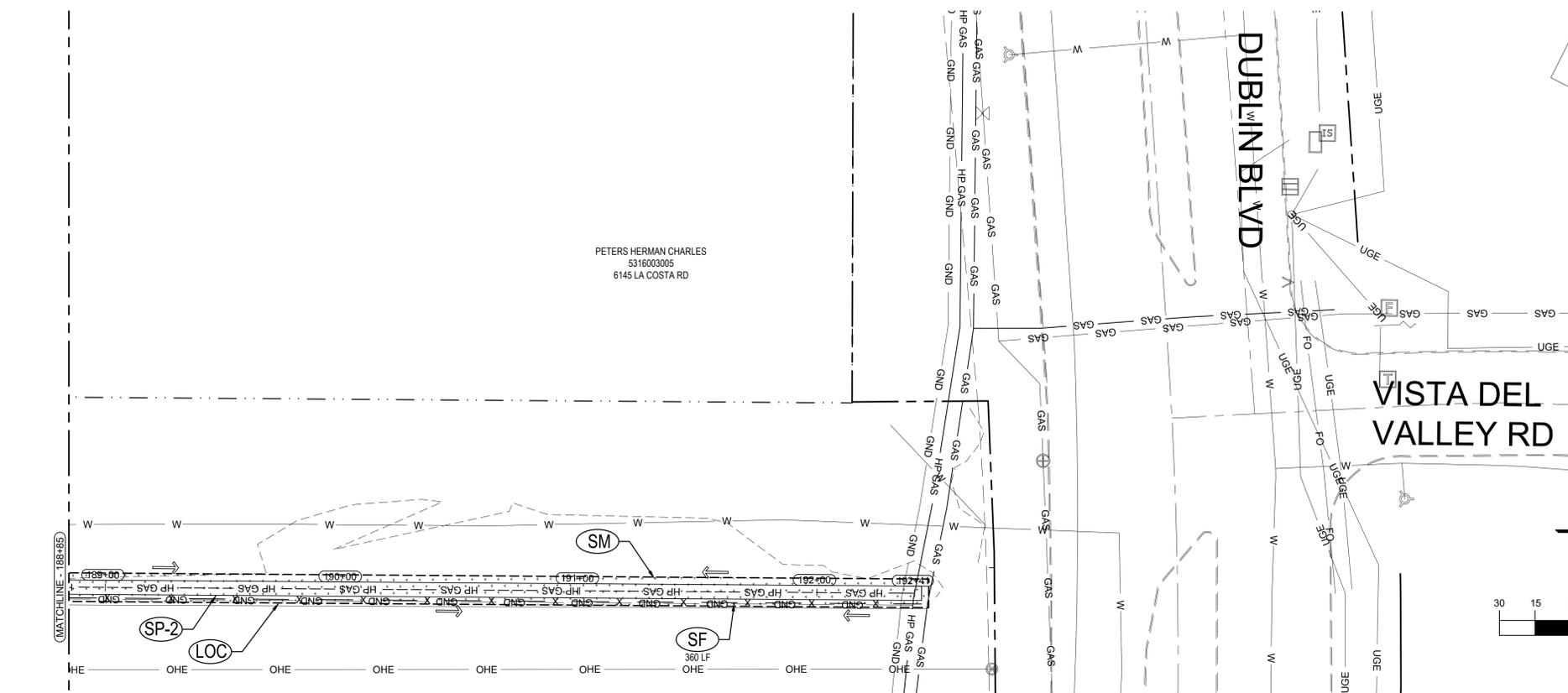
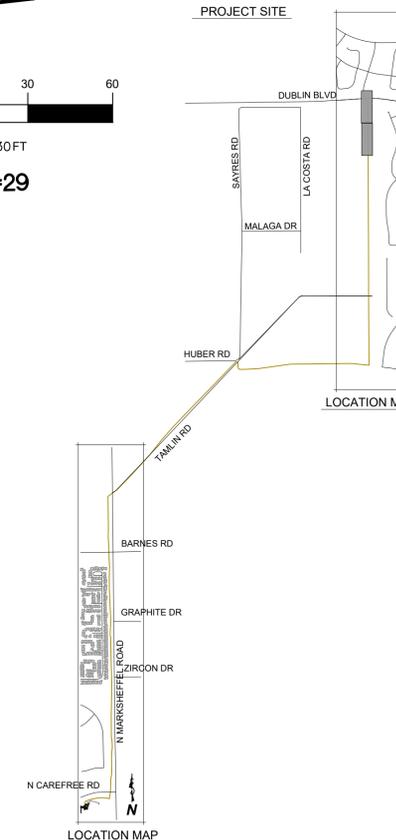
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LEGEND			
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	EXISTING CURB LINE		EXISTING WATER
	SEEDING AND MULCHING		SILT FENCE
	MATERIALS STAGING		SOIL DISTURBANCE AREA
	ROCK SOCK		EXISTING FLOW DIRECTION
	LIMITS OF CONSTRUCTION/LIMITS OF DISTURBANCE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



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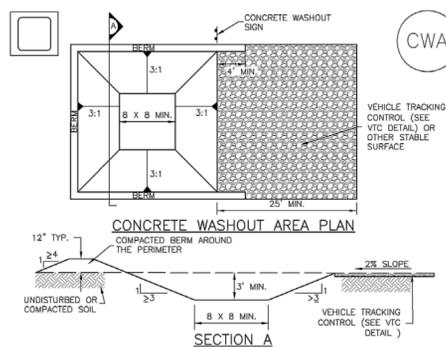
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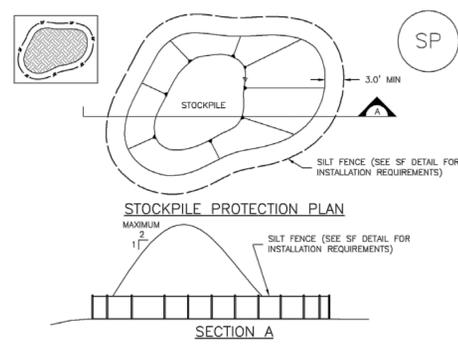
Concrete Washout Area (CWA) MM-1



- 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. 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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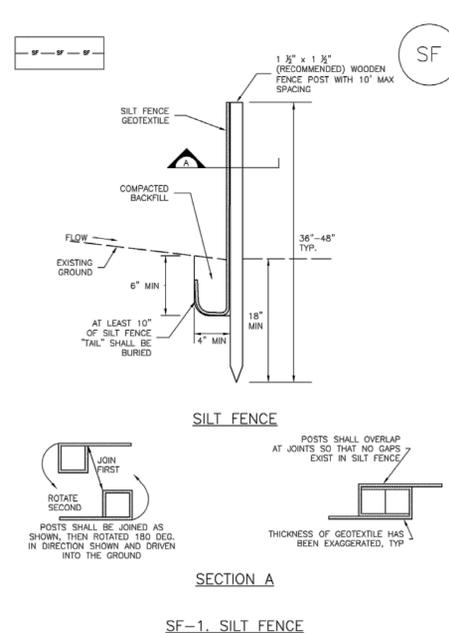
Stockpile Management (SP) MM-2



- 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 PAVED 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 SEEDING 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

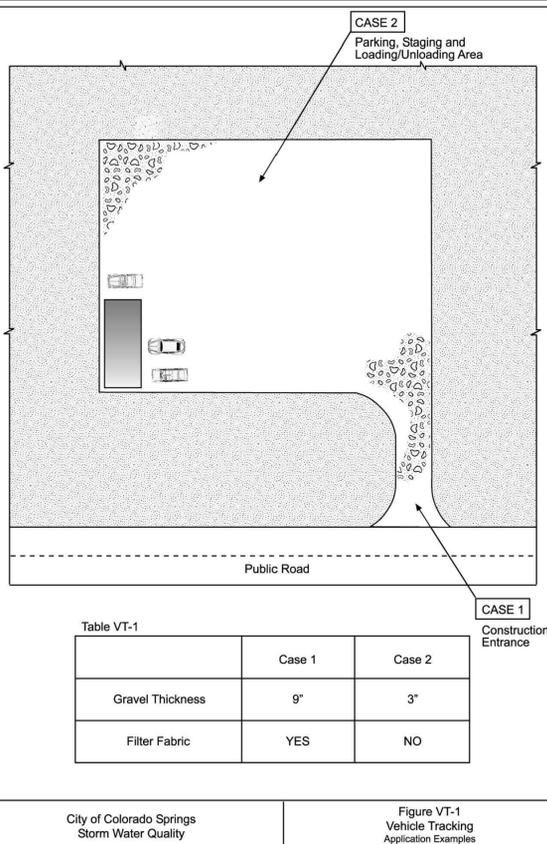


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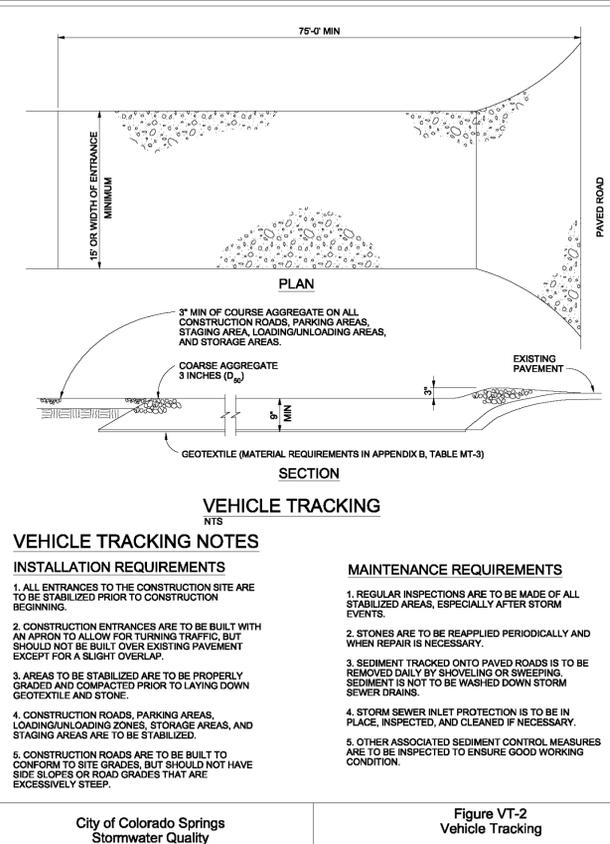
Silt Fence (SF) SC-1

- SILT FENCE INSTALLATION NOTES**
- SILT FENCE MUST BE PLACED AWAY FROM THE TOE OF THE SLOPE TO ALLOW FOR WATER FLOWING. 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 FLOWING 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, SEEDING 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.

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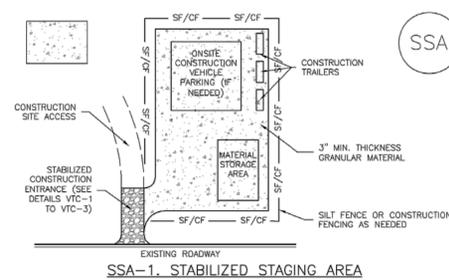


City of Colorado Springs Storm Water Quality Figure VT-1 Vehicle Tracking Application Examples



City of Colorado Springs Stormwater Quality Figure VT-2 Vehicle Tracking Application Examples

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, MSHTD #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 REPLACED OR REGRADED AS NECESSARY IF RUTTING OCCURS OR UNDERLYING SUBGRADE BECOMES EXPOSED.

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Stabilized Staging Area (SSA) SM-6

- STABILIZED STAGING AREA MAINTENANCE NOTES**
- STABILIZED STAGING AREA SHALL BE ENLARGED IF NECESSARY TO CONTAIN PARKING, STORAGE, AND UNLOADING/LOADING OPERATIONS.
 - THE STABILIZED STAGING AREA SHALL BE REMOVED AT THE END OF CONSTRUCTION. THE GRANULAR MATERIAL SHALL BE REMOVED OR, IF APPROVED BY THE LOCAL JURISDICTION, USED ON SITE, AND THE AREA COVERED WITH TOPSOIL, SEEDING AND MULCHED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY LOCAL JURISDICTION.
- NOTE: MANY MUNICIPALITIES PROHIBIT THE USE OF RECYCLED CONCRETE AS GRANULAR MATERIAL FOR STABILIZED STAGING AREAS DUE TO DIFFICULTIES WITH RE-ESTABLISHMENT OF VEGETATION IN AREAS WHERE RECYCLED CONCRETE WAS PLACED.
- 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, NOT AVAILABLE IN AUTOCAD)

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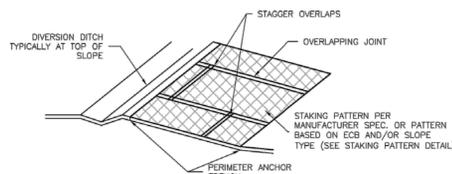
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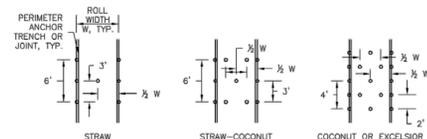
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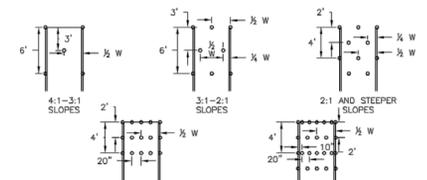
Rolled Erosion Control Products (RECP) EC-6



ECB-3. OUTSIDE OF DRAINAGEWAY



STAKING PATTERNS BY ECB TYPE



STAKING PATTERNS BY SLOPE OR CHANNEL TYPE

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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 sideoats 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 sideoats 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 sideoats grama.

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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 AT SPACING OF ONE-HALF ROLL LENGTH 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 CHANNELS.
**ALTERNATE NETTING MAY BE ACCEPTABLE IN SOME JURISDICTIONS.

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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.

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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.

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.

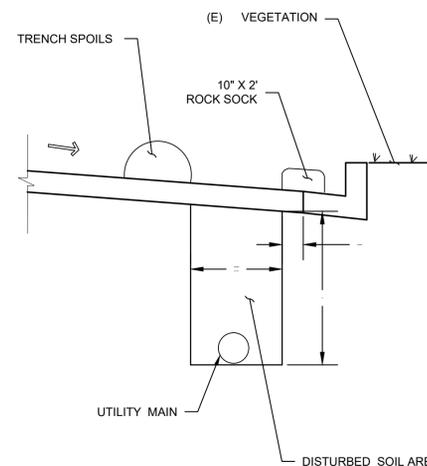
Design and Installation

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.

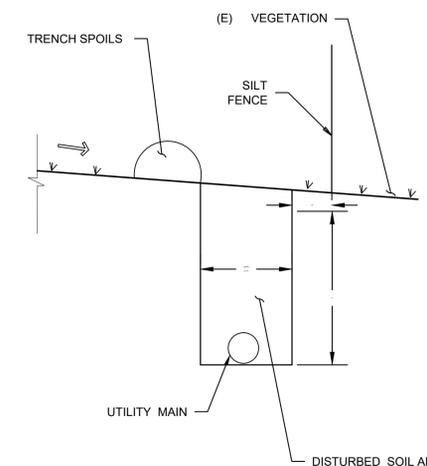
A variety of mulches can be used effectively at construction sites. Consider the following:

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

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TYPICAL TRENCH SECTION
SP-1
NOT TO SCALE



TYPICAL TRENCH SECTION
SP-2
NOT TO SCALE

MATERIALS STAGING IN ROADWAY 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.
- INSPECT PVC PIPE ALONG CURB LINE FOR CLOGGING AND DEBRIS. REMOVE OBSTRUCTIONS PROMPTLY.
- CLEAN MATERIAL FROM PAVED SURFACES BY SWEEPING OR VACUUMING.

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

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