

**SANTA YNEZ COMMUNITY SERVICES DISTRICT
MEMORANDUM**

TO: Board of Directors
FROM: Loch Dreizler, General Manager
DATE: December 20, 2023
SUBJECT: Calle Pico Mainline Wastewater Extension – Consider Options for Trench Backfill Material Options.

Proposed Motion / Recommendation

Discuss the use of Detail S-S.2 (Native Soil) instead of Detail S-2.3 (Slurry) for the native soil portion of the proposed utility trench. Including an Agreement between the Santa Ynez Community Services District and John and Margaret Martin.

Recommendation: Staff recommends approval with conditions.

Proposed Motion #1: Approve District ***Detail S-S.2*** native soil trench backfill instead of using ***Detail S-2.3*** slurry trench backfill only under the conditions outlined in this memorandum, board discussion, and the attached agreement.

Alternatives for Consideration

1. Modify any conditions from the proposed motion or to the attached/distributed agreement.
2. Do not offer a motion – effectively requiring the slurry trench backfill detail S-S.3

Policy Implications

- After subsidence on private driveways/properties adjacent to the Horizon Drive project, the District added three new trench backfill details to their design standards (see attached). A fundamental responsibility of the Board is to ensure an efficient use of the District's resources.

Fiscal Implications

- There are no direct financial implications to the District. However, there is a possibility that the District could spend additional funds if the trenching area of the mainline installation subsidizes after the 5-year assurances end.

Discussion

Jack Martin, a property owner on Calle Pico, began working with the District to extend the mainline on Calle Pico in October of 2022. However, at a wastewater committee meeting in December of 2022, Mr. Martin realized that it would likely be more cost and time-efficient to take on the responsibility of extending the mainline by himself, with help from his neighbors, including recording utility easements for the District's future repairs on the infrastructure.

Additionally, Mr. Martin will work with Hanly General Engineering Corporation, a reputable local firm with years of experience in underground utilities and public/residential excavation projects. Based on Mr. Hanly's local knowledge, he believes the new District standard detail - S-S.2 will be adequate for minimizing subsidence in the proposed trench with the proper compaction. He will warranty his work for two years, and Mr. Martin will maintain any subsidence for 3 years beyond Mr. Hanly's two years for a total of five years. Staff believes that this guarantee, along with using new District trench details, lab observations, sampling, and other project differences, will provide adequate assurance to determine the efficacy of the trench backfill over five years.

Comparison Chart between Calle Pico and Horizon Drive

	Calle Pico Difference	Horizon Drive (Hart Driveway)
District Standard Details		
Previous Standard Detail	Not Available	District Standard Detail
S-2.1 (Slurry)	At Roadway – District Detail	County Standards
S-2.2 (Native Compact)	Not roadways/driveways	Not Applicable
S-2.3 (Slurry)	At Easement on Hart Property	Not Applicable
Compaction Testing By:	Pacific Material Laboratory	Geo-Solutions
Day to Day Vehicles	Not a driveway	Sanja Cota & Hart Driveway
New Native Soil Detail	S-2.2 – New District Standard	We used a different detail
12" Lifts*	In Specifications	Unspecified in As-Built Dwg's
Contractor	Hanly Engineering Corp	Specialty Construction
Contractor Location	Santa Ynez Valley	San Luis Obispo
Project Managed by	Martin / Hanly	SYCSD Project Manager
Subsidence Assurance	See Attached/Distributed Agreement	1 Year – Standard Timeline

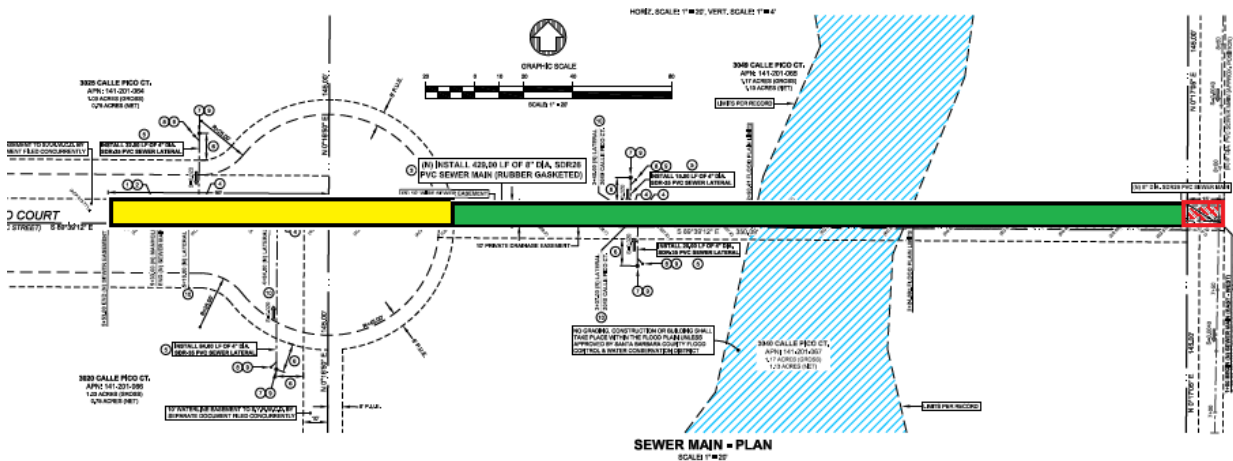
*12-inch Lifts: The thickness of each compacted layer to fill the trench. The number of passes required to obtain the required compaction depends on the lift thickness, contact pressure, and soil moisture content. However, the laboratory will provide the number of passes of a specific compaction machine for the soil type.

Determining lift thickness and number of passes may not be enough to get desirable compaction because soil properties and moisture content may vary. Therefore, the compaction process should be supervised, and suitable changes should be made to achieve uniform compaction throughout the project.

Typical Trench Detail Use

- S-2.1 – to be used under all paved areas on Calle Pico – Yellow west side of easement
- S-2.2 – to be used in all areas other than paved and the Hart Easement – Green in the middle
- S-2.3 – to be used in the Hart Easement – Red area on the East of Easement

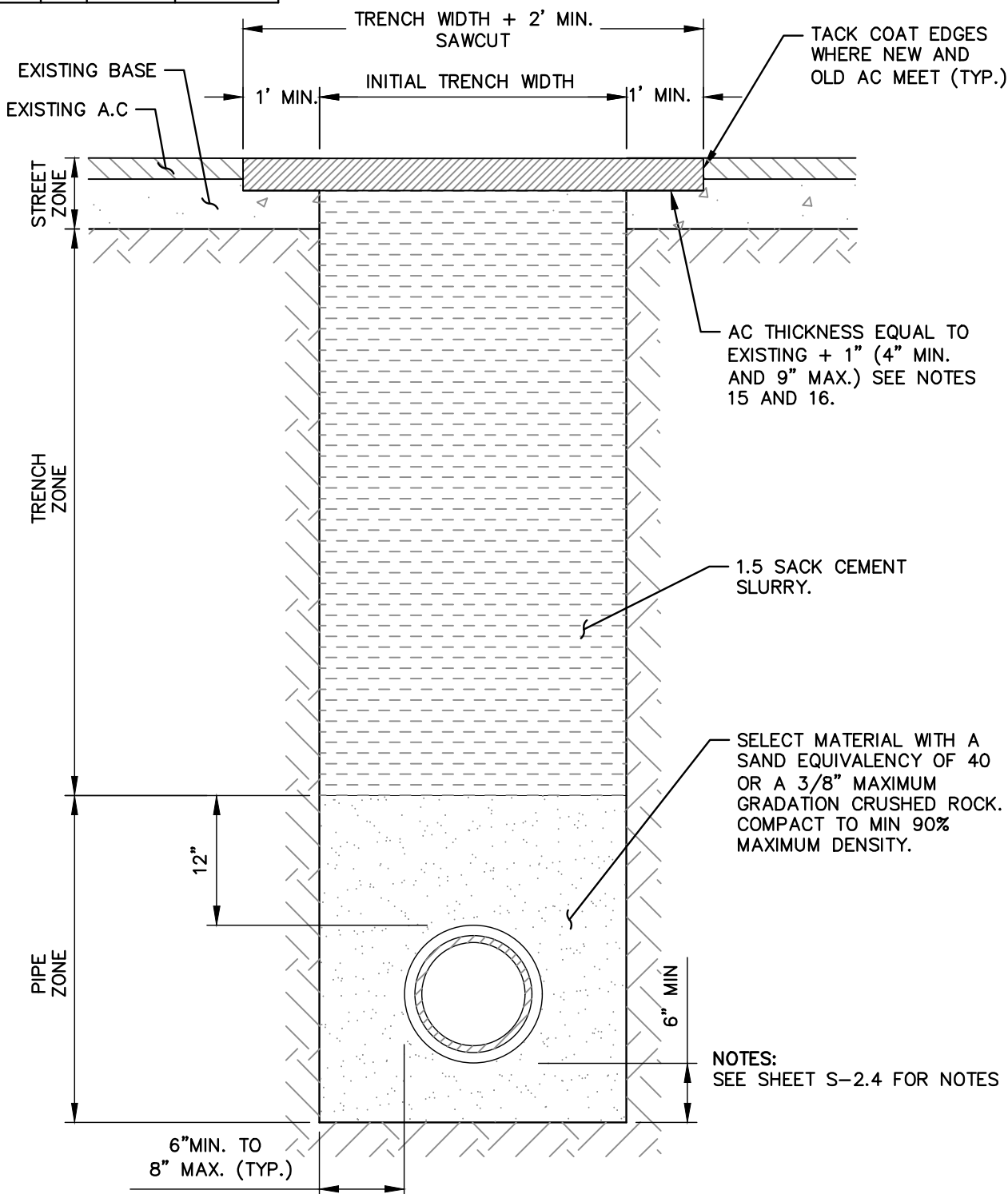
Calle Pico Easement



Attachments:

1. District's New Trench Details
2. DRAFT Agreement with John and Margaret Martin (to be distributed at the Board meeting).

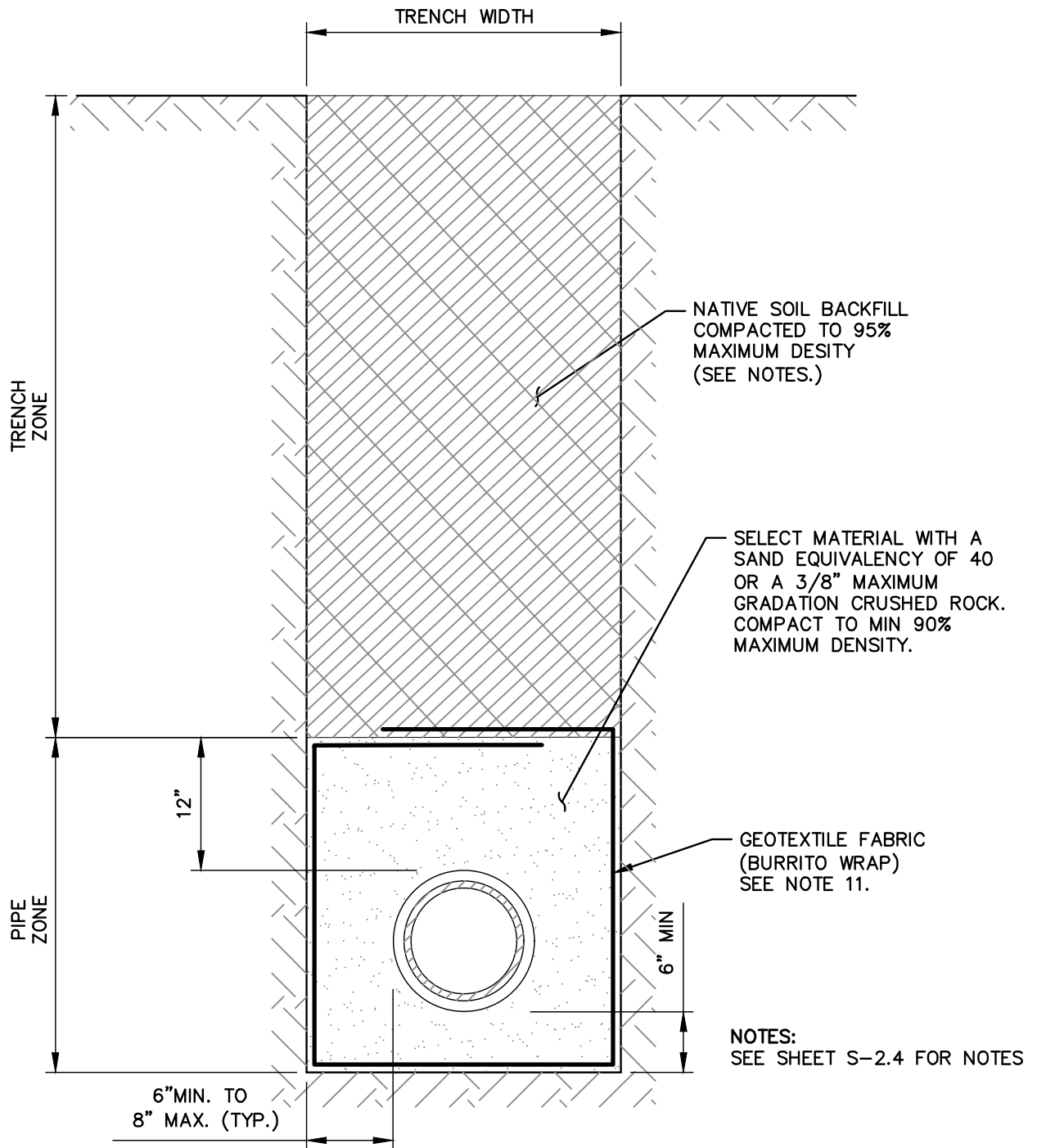
REVISIONS			
DESCRIPTIONS	BY	DATE	APPROVED
UPDATE DETAIL	MV	5/8/2023	



CASE 1 - WITHIN PAVED ROADWAY

DATE	SANTA YNEZ COMMUNITY SERVICES DISTRICT	DRAWING NO.
APRIL 2023	SEWER PIPE BEDDING AND BACKFILL DETAILS - CASE 1	S-2.1

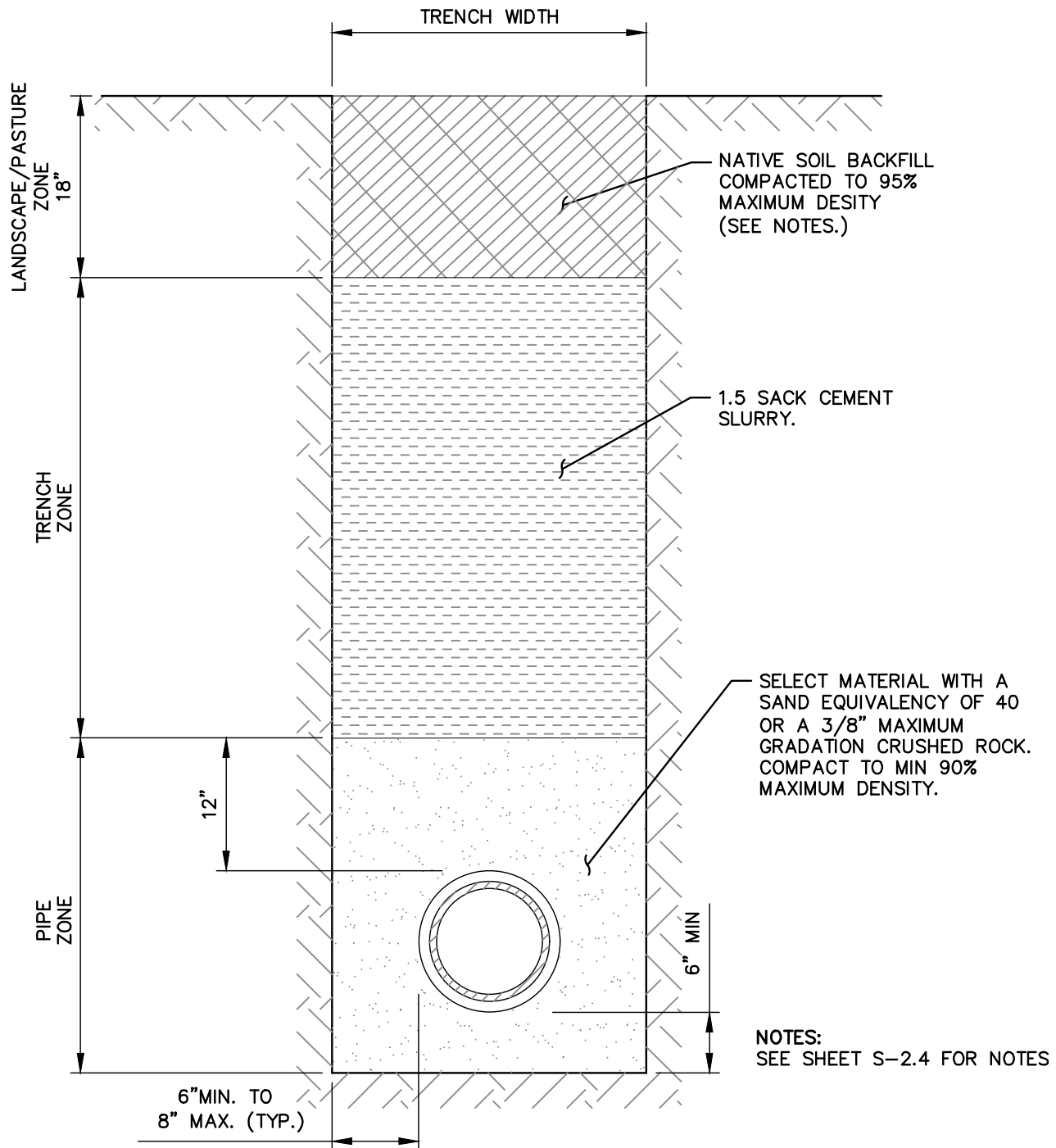
REVISIONS			
DESCRIPTIONS	BY	DATE	APPROVED
UPDATE DETAIL	MV	5/8/2023	



CASE 2 - OUTSIDE PAVED ROADWAY

DATE	SANTA YNEZ COMMUNITY SERVICES DISTRICT	DRAWING NO.
APRIL 2023	SEWER PIPE BEDDING AND BACKFILL DETAILS - CASE 2	S-2.2

REVISIONS			
DESCRIPTIONS	BY	DATE	APPROVED
UPDATE DETAIL	MV	5/8/2023	



CASE 3 - OUTSIDE PAVED ROADWAY

DATE	SANTA YNEZ COMMUNITY SERVICES DISTRICT	DRAWING NO.
APRIL 2023	SEWER PIPE BEDDING AND BACKFILL DETAILS - CASE 3	S-2.3

1. CONSTRUCTION IN THE CALTRANS OR COUNTY OF SANTA BARBARA RIGHT OF WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE APPROVED ENCROACHMENT PERMIT.
2. IF CONSTRUCTION COMPLICATIONS RESULT IN TRENCH WIDTH GREATER THAN THE PIPE OUTSIDE DIAMETER PLUS 16 INCHES, SEE SYCSD STANDARD SPECIFICATIONS – EARTHWORK FOR CORRECTIVE MEASURES.
3. MINIMUM COVER OVER ALL SEWER MAINS SHALL BE 6 FEET AS MEASURED FROM FINISHED GRADE.
4. SAND AND SELECT MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF SYCSD STANDARD SPECIFICATIONS – EARTHWORK. SAND EQUIVALENT SHALL BE DETERMINED BY TEST METHOD ASTM D–2419: 40 MINIMUM.
5. INITIAL BEDDING MATERIAL PLACED AT BOTTOM OF TRENCH AND BELOW PIPE SHALL BE LOOSELY PLACED TO AVOID STRESS CONCENTRATIONS ON THE PIPE DURING LATER COMPACTION OF BEDDING MATERIAL IN PIPE ZONE.
6. PIPE BEDDING MATERIAL SHALL BE PLACED IN 12 INCHES MAXIMUM LOOSE LIFTS AND COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY WITHIN TWO (2) PERCENT OF THE SOIL’S OPTIMUM MOISTURE CONTENT PER ASTM D–1557, AND THE BEDDING MATERIAL SHALL BE STABLE UNDER THE COMPACTING EQUIPMENT.
7. JETTING MAY BE USED AS A COMPACTION METHOD IN PIPE ZONE ONLY WHEN APPROVED IN ADVANCE BY THE DISTRICT INSPECTOR.
8. UNDER EXISTING PAVEMENT (INCLUDING SIDEWALK), TRENCH BACKFILL SHALL BE 1.5 SACK CEMENT SLURRY.
9. WHERE APPLICABLE, THE PIPE BEDDING AND TRENCH BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT EXCEEDING 12 INCHES.
10. WHERE NOT SPECIFIED ELSEWHERE, WORK OUTSIDE THE PAVED ROADWAY SHALL BE PERFORMED IN ACCORDANCE WITH CALTRANS STANDARDS AND SPECIFICATIONS.
11. OUTSIDE THE PAVED ROADWAY, GEOTEXTILE FABRIC SHALL BE PLACED IN TRENCH TO ENCIRCLE (BURRITO WRAP) THE PIPE BEDDING WITH A MINIMUM OF 12 FEET OVERLAP ALONG THE TOP OF THE PIPE. GEOTEXTILE FABRIC SHALL BE MIRAFI 160N NEEDLE–PUNCHED NONWOVEN GEOTEXTILE, OR APPROVED EQUAL.
12. OUTSIDE THE PAVED ROADWAY, TRENCH SPOIL (NATIVE SOIL) MAY BE USED FOR TRENCH BACKFILL. BROKEN ASPHALT CONCRETE (AC) MAY ALSO BE INCLUDED ONLY WHEN APPROVED IN ADVANCE BY THE DISTRICT INSPECTOR. WHEN THE NATIVE SOIL CONTAINS ROCKS OR BROKEN AC, SUFFICIENT SAND AND FINES SHALL BE MIXED INTO THE TRENCH BACKFILL TO FILL VOIDS. MAXIMUM SIZE ROCK OR BROKEN AC IN TRENCH BACKFILL IS 4 FEET.
13. COMPACTION SHALL BE BY HAND–OPERATED VIBRATORY PLATE OR OTHER SUITABLE HAND–TAMPERS IN AREAS NOT ACCESSIBLE TO LARGER ROLLERS OR COMPACTORS. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO PIPES. PROVIDE VERY LIGHT COMPACTION TO PIPE BEDDING BELOW BOTTOM OF PIPE. THOROUGHLY COMPACT PIPE BEDDING ALONG THE SIDES OF THE PIPE AND ESPECIALLY UNDER THE HAUNCHES OF THE PIPE. PROVIDE VERY LIGHT COMPACTION TO PIPE BEDDING DIRECTLY ABOVE TOP OF PIPE.
14. PIPE BEDDING AND TRENCH BACKFILL SOILS SHALL BE TESTED FOR THEIR MOISTURE–DRY DENSITY RELATIONSHIP PER ASTM D–1557. BEDDING AND BACKFILL SOILS SHALL BE TESTED FOR THEIR IN–PLACE DRY DENSITY PER ASTM D–1556 OR D–2922. COMPACTION TESTS FOR PIPE BEDDING AND TRENCH BACKFILL SHALL BE PERFORMED ONE TEST PER LIFT PER TWO HUNDRED (200) LINEAL FEET OF TRENCH (MINIMUM).
15. PAVEMENT RESTORATION SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF SYCSD STANDARD SPECIFICATIONS – REMOVAL AND RESURFACING OF STREET PAVEMENT AND SURFACES, OR AS SPECIFIED IN THE CALTRANS OR COUNTY OF SANTA BARBARA ENCROACHMENT PERMIT. THE MOST STRINGENT REQUIREMENTS SHALL APPLY. UNLESS SPECIFIED ELSEWHERE, ASPHALT CONCRETE SHALL BE ½ INCH MIX IN ACCORDANCE WITH CALTRANS SPECIFICATIONS.
16. PRIOR TO FINISH PAVING, STREET PAVEMENT SHALL BE SAWCUT A MINIMUM OF 1 FEET OUTSIDE EDGES OF TRENCH SUCH THAT CLEAN EDGES REMAIN FOR PAVING OPERATION. SAWCUT A MINIMUM OF 1/2 PAVEMENT THICKNESS. SURFACE OF NEW ASPHALT CONCRETE SHALL BE FLUSH WITH THE EXISTING ADJACENT PAVEMENT.
17. TRAFFIC STRIPING AND PAVEMENT LEGENDS/MARKINGS REMOVED OR DAMAGED BY THE WORK, SHALL BE REPLACED BY THE CONTRACTOR TO MATCH EXISTING IN ACCORDANCE WITH CALTRANS STANDARDS & SPECIFICATIONS, AT NO ADDITIONAL COST TO THE DISTRICT.

DATE	SANTA YNEZ COMMUNITY SERVICES DISTRICT	DRAWING NO.
APRIL 2023	SEWER PIPE BEDDING AND BACKFILL DETAILS – NOTES	S–2.4