Standard Sewer Drawings
January
2019

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Rincon del Diablo Municipal

Water District

Sewer Standard Drawings

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RINCON DEL DIABLO MUNICIPAL WATER DISTRICT

PART I. Sewer Construction Notes
SEWER NOTES:

1. CONTRACTOR SHALL FURNISH AND INSTALL ALL FACILITIES IN ACCORDANCE WITH RINCON DEL DIABLO MUNICIPAL WATER DISTRICT (DISTRICT) WATER SYSTEM FACILITY REQUIREMENTS, STANDARD SPECIFICATIONS AND STANDARD DRAWINGS. RDDMWD STANDARD SPECIFICATIONS AND STANDARD DRAWINGS ARE AVAILABLE AT THE DISTRICT OFFICE. CONTRACTOR SHALL BE IN POSSESSION OF DISTRICT'S SPECIFICATIONS AND STANDARD DRAWINGS ON THE JOB SITE AT ALL TIMES.

2. ALL PERMITS REQUIRED BY LAW SHALL BE ACQUIRED BY THE APPLICANT OR THEIR CONTRACTOR AND ARE MADE PART OF THE SPECIFICATIONS.

3. THE DRAWINGS AND DATA HEREON ARE HEREBY MADE PART OF THE SPECIFICATIONS.

4. REVISIONS WILL NOT BE MADE TO THESE PLANS WITHOUT THE APPROVAL OF DISTRICT.

5. APPROVAL OF THESE PLANS BY DISTRICT DOES NOT CONSTITUTE A REPRESENTATION OF THE ACCURACY OF THE LOCATION OR EXISTENCE OR NON-EXISTENCE OF ANY UNDERGROUND UTILITY, PIPE OR STRUCTURE WITHIN THE LIMITS OF WORK.

6. CONTRACTOR SHALL NOTIFY THE RDDMWD ONE WEEK PRIOR TO STARTING CONSTRUCTION.

7. THE DISTRICT INSPECTOR SHALL BE FURNISHED TWO SETS OF PROJECT DRAWINGS.

8. THE CONTRACTOR SHALL CONFORM TO CURRENT CAL OSHA SAFETY REQUIREMENTS.

9. THE CONTRACTOR SHALL SUBMIT TO THE DISTRICT A SOILS REPORT BY A QUALIFIED GEOTECHNICAL ENGINEER WHICH CERTIFIES THAT ALL TRENCH BACKFILL WAS COMPACTED AS DIRECTED BY THE SOILS ENGINEER IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND DISTRICT SPECIFICATIONS.

10. EACH LOT SHALL BE SERVICED WITH A FOUR (4)-INCH SEWER LATERAL SET AT A MINIMUM GRADE OF 2.0% WITH A MINIMUM INVERT DEPTH OF 5.0 FEET BELOW THE BOTTOM OF THE CURB AT THE PROPERTY LINE, UNLESS OTHERWISE APPROVED BY THE DISTRICT.
11. ALL LATERALS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS, ADJUSTED UNDER DISTRICT INSPECTION TO CLEAR DRIVEWAYS AND OTHER IMPROVEMENTS. LATERALS SHALL BE FOUR (4)-INCH MINIMUM DIAMETER UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL LATERALS SHALL HAVE A CLEAN OUT IN ACCORDANCE WITH STANDARD DRAWINGS NO. S-9 AND S-30. LATERALS SHALL BE INSTALLED IN ACCORDANCE WITH DISTRICT STANDARD DRAWING NOS. S-4, S-5, S-6, AND S-7.

12. JOB-MIXING OF CONCRETE IS NOT PERMITTED.

13. ALL CONCRETE TESTING REQUIRED BY THE DISTRICT WILL BE AT THE EXPENSE OF THE CONTRACTOR.

14. THE CONTRACTOR SHALL SECURE APPROVAL FROM THE DISTRICT INSPECTOR PRIOR TO BACKFILLING OVER ANY SEWER PIPE OR WYE.

15. ALL SEWER LATERALS AND MAINS SHALL BE TESTED BY "AIR TEST METHOD" AFTER CONSTRUCTION AS SpecIFIED IN THE DISTRICT SPECIFICATIONS.

16. ALL ACCESS HOLES (MAN HOLES) SHALL BE TESTED BY "VACUUM TESTS" AS SPECIFIED IN THE DISTRICT STANDARD SPECIFICATIONS.

17. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION REQUESTING A SYSTEM SHUTDOWN FOR CONNECTIONS TO EXISTING SYSTEM. SAID NOTIFICATION SHALL BE OF THREE WEEKS PRIOR TO SAID SHUTDOWN TO THE DISTRICT ENGINEER.

18. CONTRACTOR SHALL DESIGNATE A QUALIFIED SUPERINTENDENT WITH FULL AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR. SAID SUPERINTENDENT SHALL BE ON THE JOB SITE AT ALL TIMES.

19. CONTRACTOR SHALL PERFORM ALL WORK UNDER SAN DIEGO COUNTY ROAD DEPARTMENT AND/OR CITY OF ESCONDIDO JURISDICTION IN ACCORDANCE WITH ALL REQUIREMENTS OF SAID DEPARTMENT INCLUDING TRAFFIC CONTROL, PAVEMENT REMOVAL, TEMPORARY PAVEMENT (INCLUDING BASE MATERIAL) AND TEMPORARY AND PERMANENT TRAFFIC STRIPPING.

20. ALL MATERIALS, TESTING, AND INSPECTION OF THE SEWER SHALL BE IN CONFORMITY WITH THE REQUIREMENTS OF THE DISTRICT, SAN DIEGO COUNTY AND/OR CITY OF ESCONDIDO STANDARDS. FAILURE TO MEET ANY REQUIREMENTS OF THE ABOVE REFERENCED AGENCIES WILL BE CAUSE FOR REJECTION.
21. SEWER SHALL BE ______-INCH PVC (SDR 35) OR ______-INCH PVC C900 OR C905 (REQUIRED FOR SEWER DEPTH>15-Feet) IN ACCORDANCE WITH DISTRICT SPECIFICATIONS AND STANDARDS.

22. FORCE MAINS SHALL BE ______-INCH PVC IN ACCORDANCE WITH DISTRICT SPECIFICATIONS AND STANDARDS (PROVIDE FORCE MAIN DIAMETER, C900 OR C905, AND PIPE CLASS 200 OR GREATER).


24. STANDARD MANHOLE COVERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DISTRICT STANDARD DRAWING NO. S-14 AND S-15. IN UPAVED AREAS LOCKING TYPE MANHOLE COVERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DISTRICT STANDARD DRAWING NO. S-17.

25. SEWER BEDDING, BACKFILL, CAPS, AND ENCASEMENT, CAPS SHALL BE IN ACCORDANCE WITH DISTRICT STANDARD DRAWING NO. S-1, S-2, AND S-3.

26. CONTRACTOR SHALL PROVIDE AND BEAR THE TOTAL COST OF CLOSED CIRCUIT VIDEO INSPECTION OF ALL NEW INSTALLED PIPELINES UNLESS OTHERWISE DIRECTED BY THE DISTRICT INSPECTOR.

27. PRIOR TO POURING OF MANHOLE BASE, CONTRACTOR SHALL INSTALL A MANHOLE ADAPTER MADE BY GPK PRODUCTS, INC FOR ALL INLET(S) AND OUTLET AT THE PROPER GRADE AND DIRECTION.

28. EACH MANHOLE SHALL BE VACUUM TESTED IMMEDIATELY AFTER ASSEMBLY AND PRIOR TO BACKFILLING BY THE CONTRACTOR. AFTER THE CONTRACTOR COMPLETES BACKFILLING AND PRIOR TO ACCEPTANCE BY THE DISTRICT, EACH MANHOLE SHALL BE RE-TESTED IN THE PRESENCE OF THE DISTRICT INSPECTOR.

29. NO GROUT SHALL BE PLACED IN THE HORIZONTAL JOINTS BEFORE TESTING.

30. A VACUUM OF 10 INCHES OF MERCURY SHALL BE DRAWN AND THE PUMP SHUT OFF. WITH ALL VALVES CLOSED, THE MANHOLE SHALL HOLD 10 INCHES OF MERCURY FOR 60 SECONDS.
31. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE WITH A NON-SHRINK GROUT TO THE OUTSIDE WHILE THE VACUUM IS STILL BEING DRAWN. RETESTING SHALL PROCEED UNTIL A SATISFACTORY TEST IS OBTAINED.

32. MANHOLE DIAMETERS SHALL BE 48-INCH FOR SEWER DIAMETER 24-INCH AND SMALLER, AND 60-INCH FOR SEWER PIPE DIAMETER 27-INCH AND LARGER AND FOR ALL MANHOLES WITH A DEPTH OF 12-FEET OR MORE. 36-INCH CONE SHALL BE USED WITH A 60-INCH MANHOLE.

33. FOR 1) ALL NEW MANHOLES ON SEWER DIAMETERS 15-INCHES OR GREATER 2) ALL NEW MANHOLES WHERE UPSTREAM SEWER SLOPE IS 5% OR GREATER 3) ALL MANHOLES WITHIN 1000 FEET OF A FORCEMAIN DISCHARGE AND 4) EXISTING MANHOLES WITH NEW CONNECTIONS SHALL BE PROVIDED WITH INTEGRALLY LOCKING PVC OR POLYURETHANE PROTECTIVE LINING SYSTEM PER SECTION 500-2 OF THE GREENBOOK.
RINCON DEL DIABLO MUNICIPAL WATER DISTRICT

PART II. Approved Materials List
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<th>Description</th>
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<tr>
<td>CASING, END SEAL</td>
<td>1/4&quot; Thick Styrene Butadiene Rubber Sheet End Seal. Use 1&quot; Wide Stainless Steel Bands. Zippered End Seals with Stainless Steel Bands may also be used.</td>
<td>Advance Products &amp; Systems, Cascade Water Works, Calpico, Powerseal, Raychem</td>
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<td>CASING, SPACER</td>
<td>Polyethylene Casing Spacer Center Restrained Position Type with PVC Liner and Non-Metallic Anti-Friction Runners</td>
<td>Advance Products &amp; Systems, Cascade Water Works, Powerseal, Pipeline Seal &amp; Insulator, Inc. (PSI)</td>
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<td>DAMP-PROOFING</td>
<td>Coating Systems used on the Exterior Surface of Manholes at and below Water Table</td>
<td>Kop-Coat, Bitumastic, Super Service Black</td>
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<td>FLOWMETER</td>
<td>Magnetic Flowmeter</td>
<td>Sparling Tigermag, Krohne Enviromag</td>
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<td>LINER SYSTEM</td>
<td>PVC T-Shaped Liner System for Lining of Precast Manholes and Concrete Sewer Pipe</td>
<td>Ameron</td>
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<td>MANHOLE, FRAME &amp; COVER</td>
<td>24&quot; Nominal Diameter Cast Iron frame and Covers per ASTM A48, Class 30, with Machined Seats.</td>
<td>Alhambra Foundry A-1254</td>
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<td>36&quot; Nominal Diameter Cast Iron frame and Covers per ASTM A48, Class 30, with Machined Seats.</td>
<td>Alhambra Foundry A-1325</td>
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<td>MANHOLE, PIPE CONNECTOR</td>
<td>Rubber O-Ring Type Gasket for Pipe to Manhole Connection for Cast-In-Place Manholes and Cemented-In-Place Connections (for existing manholes)</td>
<td>GPK Products, Inc.</td>
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<td>MANHOLE, PRECAST CON</td>
<td>Access Manholes for Sewer Mains (Grade Rings, Cones, Risers, and Bases) designed for H-20 Highway Loading</td>
<td>B&amp;W Precast, Mar-Con Products, Jensen Precast, JR Concrete</td>
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<td>MANHOLE, T-LOCK LINED PRECAST CONCRETE</td>
<td>PVC lined cones and riser for manholes</td>
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<td>PIPE, PVC</td>
<td>4&quot; through 18&quot; ASTM D 3034, SDR 35 Sewer Pipe</td>
<td>Johns-Mansville, Diamond Plastics, Pacific Western pipe, Iplex, Vinyltech</td>
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<tr>
<td><strong>VALVE, AIR RELEASE</strong></td>
<td>Pressure Air Release and Vacuum Valve, Designed for Sewer Use</td>
<td>A.R.I.</td>
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<td><strong>VALVE, BACKWATER</strong></td>
<td>4&quot; Extendable ABS Valve</td>
<td>Clean Check, Inc.</td>
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<td><strong>WARNING/IDENTIFICATION TAPE</strong></td>
<td>Warning/identification Tape 6&quot; Wide, Colored Green, with Continuous Warning</td>
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<td>&quot;CAUTION: SEWER LINE BURIED BELOW&quot;</td>
<td>Line-Tec Type B</td>
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RINCON DEL DIABLO MUNICIPAL WATER DISTRICT

PART III. Improvement Plan Signature Blocks and Certificate
Rincon del Diablo Municipal Water District

APPROVED FOR CONSTRUCTION:

General Manager Date

Engineering Date

SEWER SYSTEM CERTIFICATION
I certify that the design of the sewer system in ____________ is in Accordance with the sewer system requirements of the Rincon del Diablo Municipal Water District and that the District has programmed adequate capacity to treat the waste from the proposed project.

General Manager Date
RINCON DEL DIABLO MUNICIPAL WATER DISTRICT

PART IV. Standard Drawings – Sewer
**Rincon del Diablo Municipal Water District**  
**Standard Drawings - Sewer**

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UNSURFACED CONDITION (TYPICAL ALL PIPE TYPES)

RESURFACING—PER EXISTING (TYPICAL ALL PIPE TYPES)

BASE MATERIAL - CLASS 2 AB, 95% RELATIVE DENSITY

SUBGRADE - 95% RELATIVE DENSITY

METAL LOCATOR TAPE 12" ABOVE SEWER FORCEMAIN

2" METAL LOCATER TAPE 12" ABOVE SEWER FORCEMAIN

BACKFILL - 90% RELATIVE DENSITY

SELECT FILL - 90% RELATIVE DENSITY

BELL

CLASS C - (8" TO 15" UP TO 15' COVER) (UP TO 20' ANY SIZE)

CLASS B - GREATER THAN 20', REQUIRES CONCRETE ENCASEMENT NO. 2, PER S-2

STANDARD INSTALLATION VCP PIPE

STANDARD INSTALLATION PVC PIPE

NOTES:

1. BEDDING MATERIAL SHALL CONSIST OF SAND, GRAVEL, CRUSHED AGGREGATE OR NATIVE FREE-DRAINING GRANULAR MATERIAL HAVING A SAND EQUIVALENT OF NOT LESS THAN 30 OR HAVING A PERMEABILITY GREATER THAN 35mm PER HOUR (1.4IN/HR), OR MATERIAL APPROVED BY THE ENGINEER.

2. BACKFILL MATERIAL MAY CONSIST OF NATIVE EXCAVATED SOIL PROVIDED THAT ALL ORGANIC MATERIAL, RUBBISH, DEBRIS AND OTHER OBJECTIONABLE MATERIALS ARE FIRST REMOVED. ROCKS GREATER THAN SIX (6) INCHES IN DIAMETER ARE NOT PERMITTED.

3. BACKFILL SHALL BE PLACED IN LIFTS NO GREATER THAN ONE (1) FEET THICK EXCEPT IN THE TOP ONE (1) FOOT OF TRENCH WHERE THE MAXIMUM LIFT THICKNESS IS SIX (6) INCHES.

4. BACKFILL AND BEDDING MATERIAL SHALL BE MECHANICALLY DENSIFIED WITH VIBRATORY EQUIPMENT TO A MINIMUM RELATIVE COMPACTION OF 90% PER ASTM 1557. WATER DENSIFICATION OF BACKFILL IS NOT ALLOWED (NO FLOODING) AND ROLLING EQUIPMENT SHALL NOT BE USED TO DENSIFY SOIL WITHIN 18 INCHES OF THE TOP OF PIPE.

5. IN PVC PIPE APPLICATIONS, C900 PVC PIPE SHALL BE USED WHEN TRENCH DEPTH EXCEEDS 15 FEET. THE MAXIMUM ALLOWABLE TRENCH DEPTH IS 20 FEET, UNLESS OTHERWISE APPROVED BY THE DISTRICT ENGINEER.

6. WHEN FIRM TRENCH BASE IS NOT ENCOUNTERED DUE TO SOFT, SPONGY OR OTHERWISE UNSUITABLE MATERIAL WITH LESS THAN 85% RELATIVE COMPACTION, UNSUITABLE MATERIAL SHALL BE REMOVED TO THE LIMITS DIRECTED BY THE DISTRICT, AND RESULTING EXCAVATION SHALL BE BACKFILLED WITH 3/4" CRUSHED ROCK UNTIL FIRM SUBGRADE IS FORMED.
### CONCRETE ENCASEMENT NO. 1

- **Trench Wall**
- **Concrete**
- **Undisturbed Earth**
- **1/2" Well Graded Crushed Rock**

### CONCRETE ENCASEMENT NO. 2

- **Trench Wall**
- **Concrete**
- **Undisturbed Earth**
- **1/2" Well Graded Crushed Rock**

### REINFORCED CONCRETE CAP CLASS "AA"

- **AC Pavement**
- **2" Cushion of DG**
- **Class B Concrete Slab**
- **Select Backfill Compacted**

### Notes:

1. Concrete encasement and caps shall be installed as required by the specifications or as directed by the engineer.
2. All concrete shall be Class 560-C-3250 concrete.
3. Use Concrete Encasement No.2 unless otherwise approved by the engineer or shown on the contract drawings.
4. Based on 1.25 factor of safety refer W.C.I. Manual, soil wt. 135 lb/cu. ft. Depths over 30' may be calculated from Marston's formula. X denotes distance at which trench width may be increased without adding to the weight on the pipe.
5. "P" = ratio of area of steel to area of concrete per linear foot (D/4 or 4"x12" concrete area).

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**General Manager**

**District Engineer**

**STANDARD DRAWINGS**

**CONCRETE CAPS AND ENCASEMENT**

**Dwg. No.** S-2
NOTES:

1. TWO FLEXIBLE COUPLINGS AS SHOWN, BOTH SIDES.

2. SUBMIT ROMAC, DRESSER, FORD OR EQUAL SEWER COUPLING WITH 316 SS HARDWARE FOR REVIEW AND APPROVAL. COUPLING SHALL BE PROVIDED WITH EPOXY COATING AND SHALL BE INSTALLED WITH WAX TAPE WRAP.
NOTES:
1. SEWER LATERALS SHALL HAVE MINIMUM SLOPE OF 2% EXCEPT AS OTHERWISE SPECIFICALLY NOTED ON THE PLANS.
2. PLUGS SHALL BE CEMENTED IN WITH CEMENT MORTAR OR SHALL BE NEOPRENE STOPPER OR APPROVED EQUAL.
3. IN NO CASE SHALL A LATERAL CONNECT TO THE SEWER MAIN DIRECTLY ON TOP OF THE PIPE.
4. WHERE A STANDARD SADDLED TEE IS ADDED, IT SHALL BE SURROUNDED WITH 4" OF CLASS "A" PORTLAND CEMENT CONCRETE IN ACCORDANCE WITH STD. DWG. S-6 & S-7.
5. LATERALS SHALL END AT THE PROPERTY LINE, UNLESS OTHERWISE NOTED ON THE PLANS.

ALTERNATE ELEVATION

NOTES CONT.: 6. UNLESS WAIVED BY THE ENGINEER, 2" WIDE METALLIC DETECTABLE LOCATOR TAPE SHALL BE PLACED WITH EACH LATERAL APPROX. 6 INCHES ABOVE THE PIPE, BUT NOT GREATER THAN 6 FEET DEEP.
7. WHERE SEWER LATERAL CROSSES ABOVE AN EXISTING OR PROPOSED WATER MAIN, USE D.I. PIPE (4" CL 51/4" CL 80) WITH HOT DIP BITUMINOUS COATING 10' EACH SIDE OF WATER MAIN.
8. MINIMUM 10'-0" SEPARATION BETWEEN SEWER LATERAL AND WATER SERVICE
9. MINIMUM 3'-6" SEPARATION BETWEEN SEWER LATERALS AT MAIN

ELEVATION

* WHERE UTILITY TRENCH IS PROPOSED BACK OF CURB SEWER LATERAL SHALL HAVE 5'-0" COVER BELOW CURB GRADE AT PROPERTY LINE.
THE VERTICAL PIPE SHALL BE BRACED WHILE BACKFILLING TRENCH.

NOTES:
1. SEE DRAWING S-4 FOR DETAILS OF SEWER LATERAL TO PROPERTY LINE.
2. USE CLASS 'C' CONCRETE WHERE SHOWN.
3. IN NO CASE SHALL A LATERAL CONNECT TO THE SEWER MAIN DIRECTLY ON TOP OF THE PIPE.
4. UNLESS WAIVED BY THE ENGINEER 2" WIDE METALLIC DETECTABLE LOCATOR TAPE SHALL BE PLACED WITH EACH LATERAL APPROXIMATELY 6" ABOVE THE PIPE.
5. MINIMUM 10' SEPARATION BETWEEN SEWER LATERAL AND WATER SERVICE. (PER DEPARTMENT OF HEALTH AND SAFETY)
6. WHERE UTILITY TRENCH IS PROPOSED BACK OF CURB SEWER LATERAL SHALL HAVE 5'-0" COVER BELOW CURB GRADE AT PROPERTY LINE.

STANDARD DRAWINGS
SEWER LATERAL
DEEP CUT

S-5
SUBMIT V.C.P. COLLAR TEE SADDLE FOR APPROVAL, EPOXIED IN PLACE PRIOR TO ENCASING.

WHERE A 1/8 BEND IS NOT USED, A ONE FOOT PIECE OUT OF TEE IS REQUIRED.

MIN 2% LATERAL SLOPE UP

1/8 BEND

MACHINE-TAPPED HOLE

560-C-3250 CONCRETE ENCASEMENT
12" MIN EACH SIDE OF SADDLE

UNDISTURBED EARTH

SECTION - SEWER LATERAL
45° STREET ELBOW

TEE & WYE SADDLES PER MANUFACTURERS SPECIFICATIONS AND TO BE TIGHTENED WITH TWO STAINLESS STEEL BANDS AROUND PIPE AND SADDLE, WITH 316SS NUTS AND BOLTS.

CUT HOLE WITH SABER SAW OR SHELL CUTTER

UNDISTURBED EARTH

SECTION - SEWER LATERAL
REVISION DA1E BY DESCRIPTION

P.V.C. PIPE

COUPLING

VITRIFIED CLAY PIPE

NOTES:

1. NO CONNECTION ALLOWABLE AT BELL END OF V.C.P. CUT BELL END OFF V.C.P. PRIOR TO MAKING CONNECTION.

2. SEWER TRANSITION COUPLING SHALL BE ROMAC WITH 316SS NUTS AND BOLTS, OR APPROVED EQUAL.

3. COUPLINGS SHALL BE EPOXY COATED AND WRAPPED IN 10 MIL. POLYETHYLENE BAG.

FLEXIBLE COUPLING
(NON-PRESSURE)

Rincon Water

GENERAL MANAGER

DISTRICT ENGINEER

STANDARD DRAWINGS
CONNECTING DISSIMILAR SEWER PIPES

S-8
NOTES:

1. PLACE CLEANOUT A MAXIMUM OF 1'-0" FROM PROPERTY LINE WITHIN R/W

2. STANDARD CLEANOUT COVER PER S-30

3. INSPECTOR MAY REQUIRE VIDEO TAPING OF LATERAL TO MAIN TO ENSURE LATERAL IS CLEAR AND CONNECTED.

4. CLEANOUT IS REQUIRED FOR ALL RESIDENTIAL LATERALS.

5. ANTI-FLOOD DEVICES TO BE INSTALLED ON ALL LATERALS WHERE THE FINISH FLOOR ELEVATION IS LOWER THAN THAT OF THE FIRST DOWNSTREAM MANHOLE PER S-29

6. FOR PAVED AREAS CLEANOUT COVER SHALL BE INSTALLED IN CONCRETE COLLAR PER S-18
NOTES:

1. THE UPPER END OF THE CHIMNEY PIPE WILL BE 8 FEET BELOW THE GRADE OF THE Lower CURB, UNLESS OTHERWISE SPECIFIED.

2. WHERE ONE OR TWO HOUSE CONNECTION(S) ARE TO BE JOINED TO THE CHIMNEY PIPE USE A SINGLE "Y" BRANCH; WHERE THREE HOUSE CONNECTIONS ARE TO BE JOINED USE DOUBLE "Y" BRANCH.

3. WHERE THE CHIMNEY PIPE IS TO BE USED FOR A SINGLE HOUSE CONNECTION FACE "Y" TOWARDS PROPERTY TO BE SERVED; WHERE USED FOR HOUSE CONNECTIONS ON BOTH SIDES OF SEWER, THE "Y" WILL FACE TOWARD THE RIGHT (LOOKING UPGRADE) AND THE HOUSE ON THAT SIDE WILL BE CONNECTED TO THE "Y" BRANCH BY A 6-INCH 45°-DEGREE BEND, AND THE HOUSE CONNECTION ON THE LEFT WILL BE CONNECTED TO THE UPPER END OF THE CHIMNEY BY A 6-INCH 45°-DEGREE BEND UNLESS OTHERWISE SPECIFIED.

4. THE SEWER MAIN WILL BE CONSTRUCTED OF THE MATERIAL SPECIFIED ON PLANS.

5. INSTALL 2" X 4" REDWOOD MARKER ABOVE UPPER END OF CHIMNEY FOR REPAIR AND CONNECTION LOCATING.
6" LATERAL

SEWER MAIN

PROPERTY LINE

560-C-3250 CONCRETE

1" FINGER HOLE

CASTING SHALL BE ALHAMBRA FOUNDRY NUMBER A-1241 OR EQUAL AS APPROVED BY THE DISTRICT

INSTALL REUSABLE EXPANSION DOLLAR PLUG FOR TESTING. LEAVE PLUG TO WATERPROOF CLEANOUT.

COVER

CASTING SHALL BE ALHAMBRA FOUNDRY NUMBER A-1241 OR EQUAL AS APPROVED BY THE DISTRICT

SEWAGE TREES ARE NOT TO BE USED EXCEPT WITH SPECIAL WRITTEN APPROVAL BY THE DISTRICT ENGINEER.

NOTES:
1. UNLESS WAIVED BY ENGINEER. A 2" WIDE METALLIC DETECTABLE LOCATOR TAPE SHALL BE PLACED WITH EACH LATERAL APPROXIMATELY 6" ABOVE THE PIPE, BUT NO GREATER THAN 6' DEEP.

NOTES:
1. MIN. SLOPE 0.02' RISE PER FOOT UNLESS OTHERWISE SPECIFIED ON PLAN AND PROFILE.

NOTES:
1. MIN. SLOPE 0.02' RISE PER FOOT UNLESS OTHERWISE SPECIFIED ON PLAN AND PROFILE.

NOTES:
1. MIN. SLOPE 0.02' RISE PER FOOT UNLESS OTHERWISE SPECIFIED ON PLAN AND PROFILE.

GENERAL MANAGER

DISTRICT ENGINEER

STANDARD DRAWINGS

SEWER TREE LATERAL & CLEANOUTS

S-11
NOTES:

1. PRECAST REINFORCED CONCRETE MANHOLES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C478, LATEST, AND SHALL BE DESIGNED FOR H-20 LOADING.

2. ALL MANHOLE SECTIONS AND GRADE RINGS SHALL BE JOINED WITH 3/8" THICK CEMENT MORTAR NEATLY STRUCK AND POINTED.

3. VERTICAL WALL OF CONE SHALL BE ON UPSTREAM SIDE OF MANHOLES.

4. WHEN A CHANGE OF PIPE SIZE AT THE MANHOLE IS SPECIFIED, THE PIPES WILL BE PLACED SO THAT THE TOPS OF THE PIPES ARE ALIGNED.

5. MANHOLE DIAMETER SHALL BE 48" FOR SEWER PIPE DIAMETERS 24" AND SMALLER, AND 60" FOR SEWER PIPE DIAMETERS 27" AND LARGER, AND FOR ALL MANHOLES WITH A DEPTH OF 12' OR MORE. 60" DIAMETER MANHOLES SHALL BE USED WITH A 36" CONE.

6. WHEN MANHOLE IS IN A STREET TO BE PAVED, MANHOLE FRAME SHALL BE SET AFTER PAVEMENT HAS BEEN PLACED. TOP OF MANHOLE SHALL BE INSTALLED PER STD. DWG. S-14.

7. MANHOLES SHALL BE SPACED AT 500 FEET MAXIMUM INTERVALS, UNLESS SPECIFIED OTHERWISE.

8. ALL NEW MANHOLES ON SEWERS 15-INCHES OR GREATER DIA., ALL NEW MANHOLES WHERE ENTERING PIPE SLOPE IS 5% OR GREATER, ALL EXISTING MANHOLES WITH NEW CONNECTIONS, AND ALL MANHOLES WITHIN 1,000 FEET OF RECEIVING A FORCE MAIN DISCHARGE; THE MANHOLES SHALL BE PROVIDED WITH INTEGRALLY LOCKING PVC OR POLYURETHANE PROTECTIVE LINING SYSTEM PER SECTION 500-2 OF THE GREENBOOK.
ALL LATERALS MUST BE PLACED UPSTREAM OF THAT OF MANHOLE

LADDER

HOUSE LATERALS

LOCATION OF MANHOLE COVER

PLAN

CONCRETE GROUT

MIN. DIA O.D. OF M.H. RINGS + 4"

SECTION A-A

NOTES:

1. REFER TO STANDARD DRAWINGS OF MANHOLES FOR DETAILS PERTAINING TO MANHOLES ONLY.

2. THE TOP 3/4 DIAMETER OF THE PIPE IS TO BE BROKEN OUT TO A NEAT LINE. BROKEN EDGES SHALL BE PLASTERED SMOOTH WITH CEMENT MORTAR.

3. THE MAXIMUM NUMBER OF LATERALS INTO A TERMINUS MANHOLE SHALL BE LIMITED TO FOUR.

4. TERMINUS MANHOLES WITH HOUSE LATERALS ARE NOT TO BE USED EXCEPT WITH SPECIAL WRITTEN APPROVAL BY DISTRICT ENGINEER.
NOTES:
ALHAMBRA FOUNDRY CO. A-1254, OR APPROVED EQUAL

3/4" x 1" PRY NOTCH

3/4" DIA. PICK HOLE

1-1/2" HIGH CASTED LETTERS TYP. PLACES

DIAMOND TREAD PATTERN

27 1/2" DIA.

26-1/4"

24" DIA.

32" DIA.

CONCRETE COLLAR
FOR PAVED AREA
USE 560-C-3250 CONCRETE

CONCRETE COLLAR
FOR UNPAVED AREA
USE 560-C-3250 CONCRETE

RINCON SEWER
PLACE 2" x 4" REDWOOD HEADER IF MORE THAN 5' TO EXISTING PAVEMENT OR AS REQUIRED BY ENGINEER

MANHOLE FRAME
MANHOLE COVER

AREA TO BE PAVED

MEET EXIST. PAVEMENT OR MIN. OF 5'-0"

SLOPE AWAY FROM MANHOLE SEE NOTE (1)

CONCRETE COLLAR PER S-14 & S-15
2"x4" REDWOOD HEADER OR AS DIRECTED

EXISTING GROUND
PER ROW AGENCY STANDARDS

NOTES:

1. SLOPE WILL CONFORM WITH RIGHT OF WAY JURISDICTION AGENCY IMPROVEMENT STANDARDS AND SPECIFICATIONS, AS APPLICABLE, OR MEET EXISTING CONDITIONS AS DIRECTED BY ENGINEER.

2. ANY PAVEMENT AREAS THAT MAY COLLECT STORM WATER AROUND MANHOLE WILL REQUIRE A RAIN-STOPPER INSERT.
NOTES:

1. MANHOLE COVER SHALL BE DESIGNED FOR A.A.S.H.O. H-20 LOADING.
2. CAST IRON SHALL HAVE MINIMUM TENSILE STRENGTH OF 30,000 LBS. PER SQ. INCH.
3. MANHOLE COVER SHALL BE "ALHAMBRA FOUNDRY CO." TYPE A1176 OR APPROVED EQUAL.

4. RAISE ALL UNIMPROVED AREA MANHOLES ABOVE GRADE AND USE BOLT DOWN COVERS. (INSTALL GAURDPOSTS).
5. RAINSTOPPERS TO BE INSTALLED WHERE STORM WATER COULD COLLECT OVER MANHOLE.

CONCRETE COLLAR
FOR PAVED AREA
USE 560-C-3250 CONCRETE

CONCRETE COLLAR
FOR UNPAVED AREA
USE 560-C-3250 CONCRETE
NOTES:

1. CLEAN-OUT IS TO BE USED FOR INDUSTRIAL OR COMMERCIAL INSTALLATIONS ONLY.
2. CLEAN-OUT IS NOT TO BE SUBSTITUTED FOR MANHOLE.
3. CLEAN-OUTS ARE NOT TO BE PLACED ON LATERALS OVER 150' LONG.
4. CLEAN-OUT PIPE MUST BE SAME DIAMETER AND MATERIALS AS MAIN LINE SEWER.
5. CASTING WILL BE ALHAMBRA FOUNDRY NO. A-1241, OR APPROVED EQUAL.
6. COVER FRAME AND CONCRETE PAD ARE TYPICAL FOR 8" I.D. MAIN LINE SEWERS.
7. PLUGS WILL BE CEMENTED IN PLACE WITH CEMENT MORTAR. NEOPRENE PLUGS OR APPROVED EQUALS MAY BE SUBSTITUTED.
8. STATION OF WYE OR LOWER 1/8 SWEEP BEND WILL CORRESPOND TO THE CLEAN-OUT STATION SHOWN ON CONSTRUCTION DRAWINGS WITH CLEAN-OUT CONSTRUCTION EXTENDED BEYOND THAT POINT AS NECESSARY.
9. USE ONLY 560-C-3250 CONCRETE FOR CONSTRUCTION.
NOTE:
1. MANHOLE TO BE INSTALLED ON BUILDING SEWER AND LOCATED SUCH THAT THE MANHOLE WILL BE ACCESSIBLE AT ALL TIMES.
2. 36" MANHOLE TO BE AS CONSTRUCTED BY SOUTHWEST CONCRETE INDUSTRIES, OR EQUAL, AND MAY BE REINFORCED, OR NON-REINFORCED.
3. WHERE NO BUILDING SET-BACK IS AVAILABLE, SET MANHOLE IN PARKWAY AREA: WHERE MANHOLE MUST BE SET IN CONCRETE WALK, PLUG PICK HOLE FLUSH. LOCATE MANHOLE TO CLEAR OTHER UTILITIES.
4. CONCRETE BASE SHALL BE OF CLASS 580-C-3250 CONCRETE AND PLACED IN ONE OPERATION. CONCRETE INVERSES SHALL BE TRUE TO GRADE AND ALIGNMENT, AND FINISHED WITH A SMOOTH SURFACE. SPECIAL CARE SHALL BE USED IN FORMING ALL CHANNELS TO FACILITATE THE FLOW OF SEWAGE.
5. ALL MANHOLE TOPS SHALL BE INSTALLED WITH THE MANHOLE COVER OVER THE DOWNSTREAM INLET, EXCEPT AS OTHERWISE SPECIFIED.
6. SEE DWG. NO. S-17 FOR DETAILS AND INSTALLATION OF MANHOLE COVER AND FRAME.
7. GRADE RINGS SHALL BE 24" I.D. EXCEPT AS OTHERWISE NOTED.
8. JOINTS SHALL BE 3/8" THICKNESS CEMENT MORTAR NEATLY STRUCK AND POINTED.
9. ALL SAMPLING MANHOLES MUST HAVE PROVISIONS FOR POWER AND COMPOSITE SAMPLER IN LOCKABLE CABINET.
LAMP HOLE FRAME AND COVER ALHAMBRA FOUNDRY NO. A-1240 OR EQUAL

NOTES:

1. ALL MANHOLE TOPS WILL BE INSTALLED WITH THE M.H. COVER AND STEPS OVER THE DOWNSTREAM OUTLET.

2. ALL PIPES AND FITTINGS SHALL BE CONSTRUCTED OF VITRIFIED CLAY OR POLY-VINYL CHLORIDE AND SHALL BE 8" MIN. DIA.

3. UPON APPROVAL FROM DISTRICT ENGINEER, DROP MANHOLE MAY BE INTERNAL TYPE BY RELINER, OR EQUAL.

CONCRETE COLLAR 560-C-3250

PRE-CAST ECCENTRIC CONCRETE MANHOLE PER STD. DWG. NO. S-12

CONCRETE SUPPORT 560-C-3250

OPTIONAL INTERNAL DROP MANHOLE, SEE NOTE 3.
STEEL CASING OR OTHER APPROVED MATERIAL

REDWOOD SKIDS
FULL LENGTH OF CASING

H
ALL WOODEN SKIDS TO BE SQUARE

NOTES:

1. ENDS OF THE CASING PIPE SHALL BE CLOSED AROUND THE CARRIER WITH A Poured-IN PLACE PLASTER-OF-PARIS OR CEMENT PLUG WITH A SMALL OPENING LEFT FOR DRAINAGE AT THE BOTTOM OF THE DOWNSTREAM SIDE ONLY (OR AS DIRECTED)

2. STEEL CASING SHALL BE INSTALLED BY MEANS OF JACKING OR DRY BORING EXCEPT WHERE SPECIFICALLY NOTED ON THE PLANS TO BE INSTALLED BY OPEN TRENCH CONSTRUCTION.

3. CASING DIA. SHALL BE MINIMUM OF 4" GREATER THAN THE OUTSIDE BELL DIA., EXCEPT SEWER PIPE CASING SHALL NOT BE LESS THAN 30" IN DIA. WHEN CASING IS BORED, UNLESS SPECIFICALLY NOTED.

4. THE STEEL MIN. CASING THICKNESS SPECIFIED IN "TABLE A" IS REQUIRED FOR CASING IN PLACE AND DOES NOT ACCOUNT FOR CONSTRUCTION LOADS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE STRUCTURAL SUFFICIENCY OF THE CASING DURING CONSTRUCTION, AND ALSO THE METHOD OF INSTALLATION.

5. GRAVITY SEWER PIPELINES AND PRESSURE PIPELINES SHALL BE SUPPORTED ON PIPE SKIDS SUBJECT TO THE APPROVAL OF THE ENGINEER, C.M.L. & C. PRESSURE PIPE MAY REST ON THE BOTTOM OF THE CASING, BUT SHALL NOT BE DRAagged INTO POSITION WITHOUT PIPE SKIDS.

6. ALL SKIDS SHALL BE SQUARE IN CROSS SECTION AND MADE FROM REDWOOD.

7. SKIDS SHALL BE ATTACHED TO PIPE BY STRAPPING WITH A STANDARD STRAPPING MACHINE TO HOLD SKIDS IN PLACE DURING PULLING OPERATION. USE STAINLESS BAND, OR METHOD OF CLEATING SKIDS TOGETHER.

8. FLEXIBLE PIPE (PVC, ETC.) SHALL HAVE Spacer GUIDE ALONG THE TOP TO PREVENT PIPE FROM FLOATING. FOR ENDS OF CASING PIPE, SEE NOTE (1). PIPE WITHIN CASING TO BE BONDED TOGETHER AT THE JOINTS FOR AN INTEGRAL UNIT PER MANUFACTURERS RECOMMENDATION. TWO APPROVED FLEXIBLE COUPLINGS SHALL BE USED AT EACH END OF CASING, PER S-8.

9. NOTICE AS REQUIRED BY THE DISTRICT SHALL BE GIVEN PRIOR TO CONSTRUCTION FOR DISTRICT INSPECTION OF CASING PIPE AND CARRIER PIPE INSTALLATION. THE AS-BUILT LOCATION AND GRADE OF CASING PIPE SHALL BE APPROVED BY THE DISTRICT PRIOR TO INSTALLATION OF THE CARRIER PIPE. DEPARTURES FROM PLANNED LOCATION OR GRADE OF THE CASING PIPE SHALL REQUIRE A FIELD SURVEY FOR CARRIER PIPE REDISIGN IF FEASIBLE, OR ABANDONMENT IN FAVOR OF A NEW INSTALLATION.

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**TABLE "A" (STEEL)**

<table>
<thead>
<tr>
<th>DIAMETER &quot;D&quot; (INCHES)</th>
<th>UP TO 150' IN LENGTH</th>
<th>OVER 150' IN LENGTH</th>
<th>RAILROADS</th>
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<tr>
<td>4&quot;-10&quot; I.D.</td>
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<td>3/4&quot;</td>
<td>AS REQUIRED</td>
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CROSSING (PERPENDICULAR) CONDITION

NOTES:

ZONE "A" NO SEWER SHALL BE CONSTRUCTED WITHOUT SPECIAL APPROVAL FROM STATE DEPARTMENT OF HEALTH SERVICES AND RINCON DEL DIABLO MWD.

ZONE "B" SEWER SHALL BE CONSTRUCTED OF EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS, POLYVINYL CHLORIDE PLASTIC PIPE WITH RUBBER RING JOINTS (PER ASTM D 3034), OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS. REQUIRES APPROVAL FROM RINCON DEL DIABLO MWD.

ZONE "C" SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH APPROVED COATING AND MECHANICAL JOINTS OR CONTINUOUS SECTION OF CLASS 200 (DR14 PER AWWA C-900) POLYVINYL CHLORIDE PLASTIC PIPE CENTERED OVER PIPE BEING CROSSED.

ZONE "P" NO SEWER LINE CONSTRUCTION ALLOWED.

1. UPON APPROVAL FROM DISTRICT ENGINEER HDPE FUSION WELDED PIPE MAY BE USED AS A CASING WHEN MINIMUM JOINT DISTANCE CANNOT BE MET.

PARALLEL CONDITION

NOTES:

ZONE "A" NO SEWER SHALL BE CONSTRUCTED WITHOUT SPECIAL APPROVAL FROM STATE DEPARTMENT OF HEALTH SERVICES AND RINCON DEL DIABLO MWD.

ZONE "B" SEWER SHALL BE CONSTRUCTED OF EXTRA STRENGTH VITRIFIED CLAY PIPE WITH COMPRESSION JOINTS, POLYVINYL CHLORIDE PLASTIC PIPE WITH RUBBER RING JOINTS (PER ASTM D 3034), OR DUCTILE IRON PIPE WITH COMPRESSION JOINTS. REQUIRES APPROVAL FROM RINCON DEL DIABLO MWD.

ZONE "C" SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH APPROVED COATING AND MECHANICAL JOINTS OR CONTINUOUS SECTION OF CLASS 200 (DR14 PER AWWA C-900) POLYVINYL CHLORIDE PLASTIC PIPE CENTERED OVER PIPE BEING CROSSED.

ZONE "P" NO SEWER LINE CONSTRUCTION ALLOWED.

1. UPON APPROVAL FROM DISTRICT ENGINEER HDPE FUSION WELDED PIPE MAY BE USED AS A CASING WHEN MINIMUM JOINT DISTANCE CANNOT BE MET.
COVER ACCESS MUST BE PROVIDED AND BROUGHT TO FINISH GRADE.

PLAN

3 CHAMBERED INTERCEPTOR

SECTION

NOTES:

1. LINK SEAL, OR EQUAL, REQUIRED ON ALL PIPES WITH WALL PENETRATIONS.
BOX TO BE SET 2" ABOVE FINISHED GRADE AND FEATHERED INTO FINISHED GRADE TO AVOID TRIP HAZARD

GALVANIZED STEEL PLATE COVER: A NON-SKID SURFACE SUCH AS DIAMOND PLATE OR OTHER APPROVED SURFACE IS REQUIRED FOR THE COVER PLATE IF THE BOX IS LOCATED IN A PEDESTRIAN OR VEHICULAR TRAFFIC AREA. A 3/4" DIA. HOLE MUST BE DRILLED 6" FROM ANY EDGE OF COVER.

NOTES:
1. ALL SURFACE WATER SHALL DRAIN AWAY FROM THE SAMPLE BOX.
2. LID AND ANGLE IRON THICKNESS WILL DEPEND ON TRAFFIC PATTERNS IN SAMPLE BOX AREA.
3. INSTALLATION IN ACCORDANCE WITH ALL LOCAL PLUMBING CODES.
4. ALL PIPE PENETRATIONS REQUIRE LINK-SEAL, OR EQUAL.
BOX TO BE SET 2" ABOVE FINISHED GRADE AND FEATHERED INTO FINISHED GRADE TO AVOID TRIP HAZARD

GALVANIZED STEEL PLATE COVER: A NON-SKID SURFACE SUCH AS DIAMOND PLATE OR OTHER APPROVED SURFACE IS REQUIRED FOR THE COVER PLATE IF THE BOX IS LOCATED IN A PEDESTRIAN OR VEHICULAR TRAFFIC AREA. A 3/4" DIA. HOLE MUST BE DRILLED 6" FROM ANY EDGE OF COVER.

NOTES:

1. ALL SURFACE WATER SHALL DRAIN AWAY FROM THE SAMPLE BOX.
2. LID AND ANGLE IRON THICKNESS WILL DEPEND ON TRAFFIC IN SAMPLE BOX AREA
3. INSTALLATION IN ACCORDANCE WITH ALL LOCAL PLUMBING CODES.
4. A-LOK GASKETS REQUIRED 8" IMMEDIATELY ADJACENT TO SAMPLE BOX.
5. ALL PIPE PENETRATIONS REQUIRE LINK-SEAL, OR EQUAL.
CLEANOUT AS REQUIRED PER LOCAL PLUMBING CODE.

BUILDING OR COLLECTING AREA

RECEPTOR OR FLOOR DRAIN

INSTALL CLEAN OUT PER RDDMWD STD. DWG. S-11

RESTROOM LINE

S-26 OR S-27 SAMPLE BOX REQUIRED

INTERCEPTOR REQUIREMENTS TO BE DETERMINED BY DISTRICT

PYRAMID PRECAST CO. INC. MODEL NO. IW2

WITH SAMPLE BOX OR APPROVED EQUAL

TYPICAL INSTALLATION

DISTRICT APPROVED GALVANIZED STEEL COVER WITH H-20 TRAFFIC LOADING

2" WITH 24" FEATHER EDGE INTO EXISTING GRADE

INSTALL CLEANOUT PER RDDMWD STD DWG. S-11

S-26 OR S-27 SAMPLE BOX AS SPECIFIED BY DISTRICT

2 CHAMBER INTERCEPTOR

NOTES:

1. ALL INTERCEPTORS SHALL HAVE A MINIMUM LIQUID CAPACITY OF 750 GALLONS. PROVIDE SIZING CALCULATIONS.

2. ALL WASTEWATER EXCLUDING RESTROOMS, MUST PASS THROUGH THE INTERCEPTOR. KITCHEN DESIGN SHALL BE SUBMITTED TO DISTRICT FOR REVIEW AND APPROVAL.

3. ALL SURFACE WATER SHALL DRAIN AWAY FROM THE INTERCEPTOR.

4. GREASE INTERCEPTOR SHALL BE IN ACCORDANCE W/ THE LATEST UNIFORM PLUMBING CODE (UPC) REQUIREMENTS, SECTION 1014.

5. LINK SEAL, OR EQUAL, REQUIRED ON ALL PIPES WITH WALL PENETRATIONS.
1. BACKWATER VALVE REQUIRED FOR PAD ELEVATIONS BELOW RIM ELEVATION OF UPSTREAM MANHOLE.
NOTES:
- ALHAMBRA FOUNDRY 1208, OR APPROVED EQUAL

1/2" RADIUS

BOTTOM VIEW

TOP VIEW

SECTION A-A

SECTION B-B

<table>
<thead>
<tr>
<th>SIZE</th>
<th>'W'</th>
<th>'X'</th>
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<tr>
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