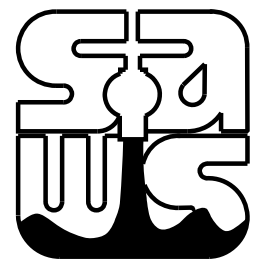


SAN ANTONIO  
WATER SYSTEM



SEWER JOB NO: 18-4540

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MICHAEL PERSYN, P.E.  
96583  
7/17/2019

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SILVERHORN GOLF COURSE 24-INCH  
REHAB PACKAGE

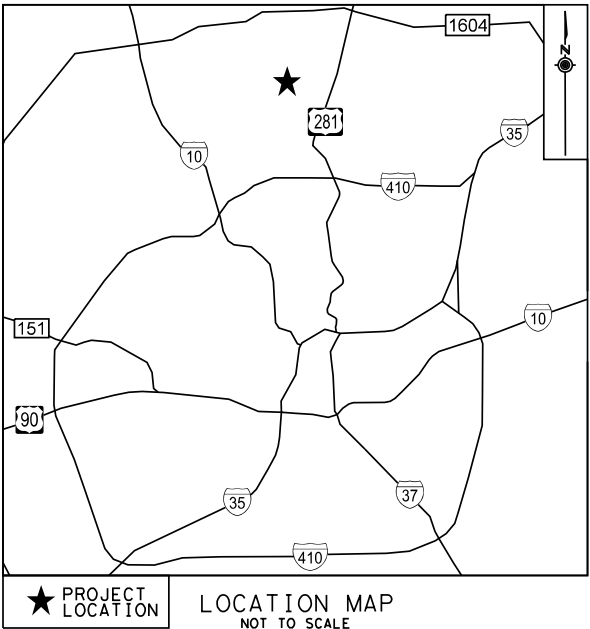
SUBMITTAL PREPARED BY:



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JULY 2019

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SAWS GENERAL CONSTRUCTION NOTES

GENERAL SECTION:

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:
- A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
- B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE."
- C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."
- D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR CONSTRUCTION."
- E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).
2. THE CONTRACTOR SHALL OBTAIN SAWS STANDARD DETAILS FROM SAWS WEBSITE, [HTTP://WWW.SAWS.ORG/BUSINESS\\_CENTER/SPECS](http://www.saws.org/business_center/specs). UNLESS OTHERWISE NOTED WITHIN DESIGN PLANS.
3. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500, AND PROVIDE NOTIFICATION PROCEDURES THE CONTRACTOR WILL USE TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 72 HOURS PRIOR TO EXCAVATION.
4. LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.
5. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:
- SAN ANTONIO WATER SYSTEM:  
SAWS UTILITY LOCATES: [HTTP://WWW.SAWS.ORG/SERVICE/LOCATES](http://www.saws.org/service/locates)  
COSA DRAINAGE 210-207-8048  
COSA TRAFFIC SIGNAL OPERATIONS 210-207-7720  
TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION AS A RESULT OF DAMAGES DONE BY THE PROJECT'S CONSTRUCTION.
7. ALL WORK IN TEXAS HIGHWAY DEPARTMENT AND BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.
8. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
9. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
10. ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WILL NOT BE COMPENSATED BY THE SAN ANTONIO WATER SYSTEM.
11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO [CONSTWORKREQ@SAWS.ORG](mailto:CONSTWORKREQ@SAWS.ORG).

WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO [CONSTWORKREQ@SAWS.ORG](mailto:CONSTWORKREQ@SAWS.ORG).

ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.

12. PRE CON SITE VIDEO: BEFORE THE START OF ANY CONSTRUCTION. THE SITE MUST BE VIDEO RECORDED BY THE CONTRACTOR WITH ONE COPY SUBMITTED TO SAWS INSPECTIONS. A PRE-SITE VIDEO WILL PROVIDE ACCURATE DOCUMENTATION OF THE EXISTING CONDITIONS (NSPI).
13. POWER POLE BRACING: CONTRACTORS SHOULD BE ADVISED THAT THERE ARE EXISTING OVERHEAD UTILITY POLES ALONG THE PROJECT CORRIDOR. CONTRACTORS SHOULD FURTHER BE ADVISED THAT IF THE DISTANCE FROM THE OUTSIDE FACE OF A UTILITY TRENCH TO THE FACE OF A UTILITY POLE IS LESS THAN 5 FEET, SAID UTILITY POLE IS SUBJECT TO BRACING, BASED ON A DETERMINATION MADE BY UTILITY POLE OWNER. COSTS INCURRED BY CONTRACTOR FOR BRACING OF THESE UTILITY POLES IS SUBSIDIARY TO THAT RESPECTIVE UTILITY COMPANY'S WORK. IT IS ADVISABLE FOR THE CONTRACTOR TO REVIEW THE CONSTRUCTION DOCUMENTS, AND VISIT THE CONSTRUCTION SITE TO DETERMINE POTENTIAL IMPACTS.
14. CONSTRUCTION SEQUENCING: IT IS THE CONTRACTOR SOLE RESPONSIBILITY TO SCHEDULE SEQUENCING FOR REMOVAL AND INSTALLATION OF EXISTING AND PROPOSED SAWS UTILITIES IN CONJUNCTION WITH GENERAL PROJECT CONSTRUCTION. SEQUENCE OF CONSTRUCTION ACTIVITIES SHALL BE CONSIDERED IN ORDER TO MINIMIZE THE EXTENT AND DURATION OF DISTURBANCES.

SEWER SECTION:

15. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:
- A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT 210-704-SAWS (210-704-7297). PROVIDE THE ADDRESS OF THE SPILL AND AN ESTIMATED VOLUME OR FLOW.
- B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
- C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
- D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
- E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
- F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISIONING THE AFFECTED SEWER MAINS (AT SAWS DIRECTION) WITHIN 24 HOURS.

SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA.

NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.

16. THE CONTRACTOR SHALL PROVIDE BYPASS PUMPING OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED, IN ACCORDANCE WITH SAWS SPECIFICATION ITEM NO. 864-S1, "BYPASS PUMPING SMALL DIAMETER SANITARY SEWERS" AND ITEM NO. SP864-S2, "BYPASS PUMPING". PAYMENT FOR SUCH WORK WILL BE MADE UNDER THE BID ITEM "BYPASS PUMPING" (PER EACH) AS PER SAWS SPECIAL SPECIFICATION.
17. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT 210-233-3500 AND/OR SAWS PRODUCTION GROUPS AT LEAST ONE WEEK OR MORE IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
18. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS (NSPI).
19. SMART MANHOLE COVERS: THE CONTRACTOR SHALL NOTIFY JUAN C. RAMIREZ AT 210-233-3558 AND SAWS EOC AT 210-704-SAWS (210-233-7297) A MINIMUM OF 72 HOURS, NOT COUNTING WEEKENDS OR SAWS HOLIDAYS, BEFORE WORKING ON THE PIPE OR MANHOLE, IN ORDER TO HAVE SAWS REMOVE THE SMART COVER. ANY DAMAGE DONE TO THE SMART COVER WILL BE CHARGED TO THE CONTRACTOR THROUGH A CHANGE ORDER.

NOTES:

1. CONTRACTOR TO MAINTAIN SEWER LATERALS AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL ALSO MAINTAIN ACCESS TO ALL EXISTING AND PROPOSED WATER VALVES AT ALL TIMES (NSPI).
2. NSPI - NOT A SEPARATE PAY ITEM.

3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING OPERATION OF ALL EXISTING UTILITIES AFFECTED BY PROPOSED CONSTRUCTION.
4. TREE REMOVAL IS NOT PERMITTED ON THIS PROJECT UNLESS NOTED OTHERWISE BY CALLOUTS IN THE PLANS. CONTRACTOR SHALL TAKE EXTREME CARE WHEN WORKING AROUND TREES TO PREVENT DAMAGE. PRIOR TO THE START OF WORK, CALL 207-1111 TO SCHEDULE A PRE-CONSTRUCTION FENCING INSPECTION. TREE PROTECTION AND PRUNING OF TREES REQUIRED TO CLEAR RIGHT OF WAY OR EASEMENTS AND ALL ONSITE TREE REMOVAL WILL BE DONE AT CONTRACTOR'S EXPENSE (NSPI).

CPS ENERGY NOTES:

1. CALL THE TEXAS STATE WIDE ONE CALL LOCATOR NUMBER 1-800-545-6005, 48 HOURS BEFORE BEGINNING ANY EXCAVATION.
2. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, CPS ENERGY MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN PROJECT AREA.
3. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING CPS ENERGY OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES IF ADJACENT TO WORK AREAS.
4. CONTRACTOR TO FIELD VERIFY THE DEPTH OF GAS MAINS BEFORE BEGINNING OF CONSTRUCTION.

AT&T NOTES:

1. THE EXISTENCE AND LOCATION OF UNDERGROUND CABLE INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE.
2. THE CONTRACTOR SHOULD CALL FOR LOCATES THROUGH THE "ONE CALL" UTILITY LOCATE SERVICE (1-800-545-6005) 48 HOURS PRIOR TO CONSTRUCTION/EXCAVATION WORK, CONTRACTORS HAVE THE RESPONSIBILITY TO PROTECT AND SUPPORT TELEPHONE COMPANY PLANT DURING CONSTRUCTION.

NOTE FOR THE CITY OF SAN ANTONIO FLATWORK:

ALL LIMITS FOR CURB, SIDEWALK, AND TREE PREP BEYOND WHAT IS CONSIDERED INCIDENTAL TO NORMAL UTILITY CONSTRUCTION WILL BE ADDRESSED BY THE SAWS INSPECTOR. SAWS INSPECTOR WILL ALSO DETERMINE IF ADDITIONAL COMPENSATION IS WARRANTED IF LIMITS EXCEED INCIDENTALS.

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH, AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OF SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

GENERAL TCP NOTES

1. THE CONTRACTOR SHALL NOT HAVE EXCLUSIVE USE OF THE RIGHT OF WAY BUT SHALL COOPERATE IN THE USE OF THE RIGHT OF WAY WITH THE CITY OF SAN ANTONIO, TEXAS DEPARTMENT OF TRANSPORTATION, AS WELL AS VARIOUS PUBLIC UTILITY COMPANIES AS MAY BE REQUIRED. IN THE EVENT OF UNFORESEEN UTILITY ADJUSTMENTS, THE CONTRACTOR SHALL EXECUTE WORK IN SUCH A MANNER AND SEQUENCE AS TO ALLOW THE ADJUSTMENTS TO BE MADE WITH MINIMAL DISRUPTION TO TRAFFIC.
2. TRAFFIC MUST BE HANDLED APPROPRIATELY THROUGH THE PROJECT DURING CONSTRUCTION AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE FOR THE SAFETY AND COMFORT OF THE TRAVELING PUBLIC AT ALL TIMES.
3. THE CONTRACTOR'S ATTENTION IS CALLED TO THE NECESSITY OF ERECTING AND MAINTAINING BARRICADES, WARNING SIGNS, AND DIRECTIONAL SIGNS AT ALL APPROACH STREET INTERSECTIONS IN ORDER TO PROPERLY DIRECT TRAFFIC WITHIN THE LIMITS OF THIS PROJECT. ALL SUCH BARRICADES, WARNING SIGNS, AND DIRECTIONAL SIGNS SHALL COMPLY WITH THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
4. CONTRACTOR SHALL PROVIDE FOR THE SAFE MOVEMENT OF ALL PEDESTRIAN TRAFFIC, GOLF COURSE TRAFFIC, AND BICYCLE TRAFFIC IN AND AROUND THE CONSTRUCTION AREA DURING THE CONSTRUCTION PHASING. ALL SUCH BARRICADES, WARNING SIGNS, AND DIRECTIONAL SIGNS SHALL COMPLY WITH THE LATEST EDITION OF THE TMUTCD.

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No.	Revision	Drawn	Approved	Date
REVISIONS				
		SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE		
GENERAL NOTES				
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 2
SECT. No.		JOB No. 18-4540		
DR. MW	CK.			
				Of 45

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SEWER REHABILITATION NOTES:

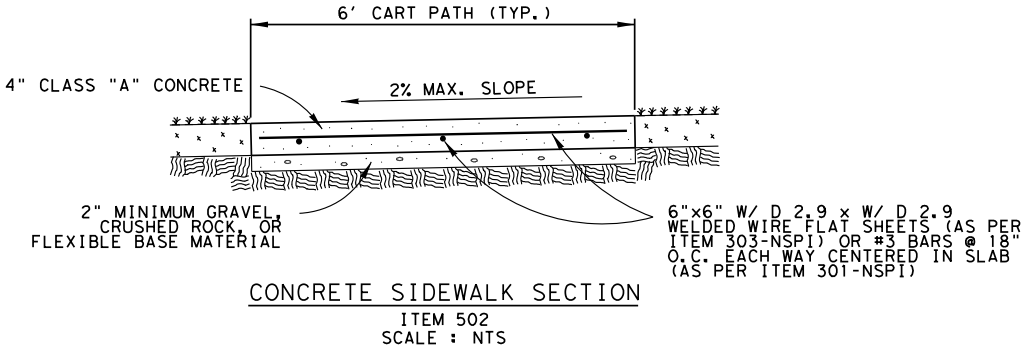
- THESE PLANS WERE PREPARED WITH LIMITED ON THE GROUND SURVEY. AERIAL IMAGERY MAY NOT REFLECT ALL RECENT IMPROVEMENTS. CONTRACTOR SHALL FIELD VERIFY SITE CONDITIONS AND ELEVATIONS PRIOR TO CONSTRUCTION.
- PROFILES SHOWN IN PLANS FOR CIPP SEGMENTS ARE BASED ON BEST INFORMATION AVAILABLE. INVERTS ARE BASED ON SAWS GIS DATA AND LIMITED FIELD SURVEY. INFORMATION IS PROVIDED TO ASSIST CONTRACTOR WITH PLANNING INSTALLATION. SLIGHT DISCREPANCIES WITH MANHOLE ELEVATIONS MAY BE ENCOUNTERED; CONTRACTOR SHALL FIELD VERIFY.
- ALL POINT REPAIRS MUST BE CONFIRMED AND APPROVED BY SAWS AND DESIGN ENGINEER VIA PRE-TELEVISIONING PRIOR TO CONSTRUCTION.
- CONTROL NOISE LEVEL DURING NIGHT HOURS IN ACCORDANCE WITH CITY OF SAN ANTONIO NOISE ORDINANCES, EXCEPT AS MODIFIED BELOW. CONSTRUCTION ACTIVITIES AND EQUIPMENT FOR ACTIVITIES BETWEEN THE HOURS OF 6 P.M. AND 7 A.M. SHALL BE EQUIPPED WITH ACOUSTICAL ENCLOSURES TO LIMIT NOISE LEVEL TO 56 DECIBELS WHEN MEASURED AT ADJACENT RESIDENTIAL PROPERTY LINE OR 63 DECIBELS WHEN MEASURED AT ADJACENT BUSINESS ZONED PROPERTY LINE. DAYTIME NOISE LEVELS (7 A.M. TO 6 P.M.) SHALL NOT EXCEED 80 DECIBELS WHEN MEASURED AT NEAREST PROPERTY LINE.
- CONTRACTOR SHALL BE AWARE THAT PROPOSED CIPP WILL LINE THROUGH MINOR JOINT OFFSETS, MINOR SAGS, AND OTHER MINOR PIPE DEFECTS. MORE SIGNIFICANT DEFECTS THAT NEED TO BE LINED THROUGH ARE SPECIFICALLY CALLED OUT IN THE PLANS OR ARE PROPOSED TO BE POINT REPAIRED.
- REHABILITATED MANHOLES SHALL RECEIVE A NEW RING AND COVER TO MATCH THE EXISTING DIAMETER PER ITEM NO. 851 AS INDICATED IN THE DRAWINGS. RECONSTRUCTED MANHOLES SHALL RECEIVE A NEW 32" COVER, REGARDLESS OF EXISTING COVER SIZE. NOTE THAT SOME MANHOLE COVERS WITHIN THE PROJECT LIMITS HAVE BEEN UPGRADED TO THE CURRENT STANDARDS BY SAWS. THESE MANHOLES WILL NOT REQUIRE A NEW RING AND COVER UNDER ITEM 851. CONTRACTOR TO REPORT ANY DISCREPANCES IN MANHOLE LID REPLACEMENTS TO ENGINEER AND SAWS INSPECTOR.
- NEW MANHOLES INSTALLED FOR BYPASS SUCTION POINTS SHALL BE CONSTRUCTED PER SAWS STD DWG DD-852-01. CONTRACTOR SHALL SUBMIT DETAILS FOR DOGHOUSE MANHOLE INSTALLATION AS PART OF SUBMITTAL PROCESS.
- CONTRACTOR IS ADVISED THAT HANGING GASKETS ARE PRESENT THROUGHOUT PIPELINE SEGMENT. REMOVAL OF HANGING GASKETS FOR CIPP INSTALLATIONS SHALL BE SUBSIDIARY TO ITEM 868 SANITARY SEWER SYSTEM CLEANING.
- ADDITIONAL POINT REPAIRS AND OBSTRUCTION REMOVALS HAVE BEEN INCLUDED IN THE TOTAL ESTIMATED QUANTITIES TABLE DUE TO THE UNKNOWN CONDITION OF THE PIPES.

TCI STORM WATER ENGINEERING NOTES:

- WORK WITHIN THE 100-YEAR FLOODPLAIN OR CITY OF SAN ANTONIO DRAINAGE CHANNELS IS SUBJECT TO THE TERMS OF THE FLOODPLAIN DEVELOPMENT PERMIT ISSUED BY THE CITY. A COPY OF THIS PERMIT IS INCLUDED IN THE BID DOCUMENTS FOR THE CONTRACTOR'S USE.
- CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING DRAINAGE FACILITIES FROM DAMAGE. ANY DAMAGE TO EXISTING DRAINAGE SYSTEMS, WHETHER OR NOT SHOWN ON THE PLANS, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AT HIS EXPENSE. THE CONTRACTOR SHALL NOTIFY STORM WATER ENGINEERING AT 210-207-8052 AS SOON AS CONFLICTS WITH UTILITIES ARE ENCOUNTERED OR ANY DRAINAGE SYSTEM IS DAMAGED DURING CONSTRUCTION.
- CONSTRUCTION SPOILS WILL NOT BE ALLOWED TO BE DEPOSITED ANYWHERE WITHIN A DRAINAGE EASEMENT, RIGHT-OF-WAY, OR FLOODPLAIN WITHIN THE LIMITS OF THE PROJECT AND SHALL BE DISPOSED OFFSITE IN COMPLIANCE WITH CURRENT APPLICABLE REGULATIONS.

GOLF COURSE NOTES:

- CONTRACTOR IS ADVISED THAT SILVERHORN GOLF COURSE WILL MAINTAIN NORMAL OPERATIONS THROUGHOUT THE CONSTRUCTION PROJECT. CONSTRUCTION WORK SHALL BE SCHEDULED MONDAY THOUGH FRIDAY; REFER TO THE SPECIAL CONDITIONS FOR CONSTRUCTION TIMELINE LIMITATIONS AND CONTACT INFORMATION.
- PRIMARY CONSTRUCTION ACCESS ROUTE SHOWN IN THE PLANS SHALL SERVE AS THE CONTRACTOR'S PRIMARY INGRESS AND EGRESS ROUTE. THE SECONDARY CONSTRUCTION ACCESS ROUTE SHOWN IS STRICTLY FOR ACCESS TO MANHOLES AND POINT REPAIRS (IF NEEDED). CONTRACTOR SHALL LIMIT USE OF SECONDARY CONSTRUCTION ACCESS TO MINIMIZE IMPACTS TO THE GOLF COURSE. REFER TO SHEET 23-31 FOR PRIMARY AND SECONDARY ACCESS ROUTES.
- CONTRACTOR TO MINIMIZE INGRESS/EGRESS WHEREVER POSSIBLE TO MINIMIZE THE AMOUNT OF REMOVAL OF EXISTING VEGETATION AND DISTURBED AREA FOR THE PROJECT. CONSTRUCTION ACCESS ROUTES SHOWN ON SHEETS 23-30 ARE INTENDED TO MINIMIZE CONFLICTS WITH GOLF COURSE OPERATIONS AND CUSTOMERS AND REDUCE AMOUNT OF TREE/VEGETATION CLEARING. CONTRACTOR MAY MODIFY LOCATION OF CLEARING SLIGHTLY WITHIN THE ACCESS AREA SHOWN BASED ON FIELD CONDITIONS AND HIS OPERATIONS, BUT IN NO CASE SHALL TREE CLEARING WIDTH EXCEED LIMITS SHOWN IN THE DETAIL ON SHEET 23 IN ORDER TO MAINTAIN COMPLIANCE WITH TREE PERMIT FROM CITY OF SAN ANTONIO.
- CONTRACTOR SHALL MINIMIZE CLEARING WITHIN THE CONSTRUCTION ACCESS AREA TO MAINTAIN EXISTING TREE CANOPY. IN NO INSTANCE SHALL HERITAGE TREES (24" AND LARGER) BE REMOVED. HERITAGE TREES ARE SHOWN IN THE PLANS AND TAGGED IN THE FIELD. HERITAGE TREES AND TREES TO REMAIN WITHIN THE ACCESS AREA SHALL BE PROTECTED PER CITY OF SAN ANTONIO TREE PROTECTION DETAILS (NSPI). TREES/VEGETATION REMOVED FOR CONSTRUCTION ACCESS MAY BE MULCHED WITHIN THE ACCESS AREA AND SHALL BE STOCKPILED AT LOCATIONS DESIGNATED BY SILVERHORN GOLF COURSE. STOCKPILED MULCH MAY NOT BE PLACED IN THE 100-YEAR FLOODPLAIN. SEE TREE CLEARING LIMITS AND ACCESS AREA ON SHEETS 32-39.
- CONTRACTOR SHALL AVOID DAMAGE OF ANY KIND TO THE GOLF CART PATHS, GREENS, OR FAIRWAYS UNLESS IDENTIFIED ON THE PLANS FOR REPLACEMENT. CONTRACTOR SHALL PROVIDE TEMPORARY RESTORATION USING 4" COLD MIX ASPHALT AS NEEDED UNTIL FINAL RESTORATION IS COMPLETE. ANY DAMAGE DONE OUTSIDE THE ACCESS EASEMENT SHOWN SHALL BE REPAIRED TO ITS ORIGINAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL MAINTAIN ACCESS ON ALL CART PATHS. BYPASS PIPING SHALL BE BURIED AT LOCATIONS SHOWN IN THE PLANS.
- RESTORATION OF CONSTRUCTION AREAS SHALL BE IN ACCORDANCE WITH THE GOLF COURSE ACCESS AND RESTORATION SHEETS 24-31. CONTRACTOR SHALL USE PROTECTIVE MATS WHERE SHOWN IN THE ACCESS AND RESTORATION SHEETS TO MINIMIZE IMPACTS TO GOLF COURSE FAIRWAYS AND GREENS. FAIRWAYS AND GREENS SHALL BE RESTORED UNDER PAY ITEM 1020 "GOLF COURSE RESTORATION ALLOWANCE".



TOTAL ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
100	MOBILIZATION	LS	1
SP100.1	INTERMEDIATE DEMOBILIZATION/REMOBILIZATION	EA	1
SP100.2	INTERMEDIATE DEMOBILIZATION BYPASS EQUIPMENT RENTAL	DAY	10
SP100.3	INTERMEDIATE DEMOBILIZATION BYPASS PUMPING FUEL	DAY	10
SP100.4	INTERMEDIATE DEMOBILIZATION BYPASS PUMPING WATCH	DAY	10
101	PREPARING RIGHT-OF-WAY	LS	1
103.3	REMOVE SIDEWALKS AND DRIVEWAYS (COSA SPEC)	SF	5051
SP164.1	CELLULOSE FIBER MULCH SEEDING (PERM) (TXDOT SPEC)	SY	24992
SP164.2	DRILL SEEDING (PERM) (TXDOT SPEC)	SY	1003
205.2	HOT MIX ASPHALTIC PAVEMENT - TYPE B (4" COMPACTED DEPTH) (COSA SPEC)	SY	46
502	CONCRETE SIDEWALK (COSA SPEC)	SY	562
515	TOPSOIL (4" THICK)	SY	4341
516.1	BERMUDA SODDING (COSA SPEC)	SY	4341
SP530	BARRICADES, SIGNS, AND TRAFFIC HANDLING (COSA SPEC)	LS	1
SP540	TEMPORARY EROSION, SEDIMENT, AND WATER POLLUTION PREVENTION AND CONTROL (COSA SPEC)	LS	1
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	140
SP552.1	REPLACE SPRINKLER HEAD	EA	5
SP552.2	REPAIR IRRIGATION PIPING (UP TO 2" DIAMETER)	EA	5
SP552.3	REPAIR IRRIGATION PIPING (3" TO 4" DIAMETER)	EA	5
SP552.4	REPLACE IRRIGATION CONTROL VALVE (UP TO 2" DIAMETER)	EA	5
SP552.5	REPLACE IRRIGATION CONTROL VALVE (3" TO 4" DIAMETER)	EA	5
851	ADJUST EXISTING MANHOLES	EA	10
852	4' DIA. SANITARY SEWER MANHOLE	EA	1
852	EXTRA DEPTH MANHOLE	VF	3.4
855	RECONSTRUCTION OF EXISTING MANHOLES	EA	2
SP864-S2	BYPASS PUMPING (LARGE DIAMETER SANITARY SEWERS)	EA	1
866	SEWER MAIN TELEVISION INSPECTION (8" TO 24")	LF	3426
866	SEWER MAIN TELEVISION INSPECTION (27" AND LARGER)	LF	314
SP901.1	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (24")	LF	3426
SP901.2	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (30")	LF	314
SS910.1	MANHOLE REHABILITATION (STANDARD MANHOLES UP TO 5' DIA.)	VF	109.1
SS910.3	URETHANE GROUT INJECTION	GAL	20
SS1020	GOLF COURSE RESTORATION ALLOWANCE	ALW	1
SP1103.1	POINT REPAIRS FOR 24" DIAMETER (6'-10' DEPTH)	EA	9
SP1103.2	POINT REPAIRS FOR 24" DIAMETER (10'-14' DEPTH)	EA	7
SP1103.3	EXTRA LENGTH POINT REPAIRS FOR 24" DIAMETER (6'-10' DEPTH)	LF	72
SP1103.4	EXTRA LENGTH POINT REPAIRS FOR 24" DIAMETER (10'-14' DEPTH)	LF	80
SP1103.5	OBSTRUCTION REMOVAL BY REMOTE DEVICE, 21" OR 24" DIAMETER, ALL DEPTHS	EA	11
SS7003.1	CONSTRUCTION SAFETY FENCING	LF	2305
SS7003.2	TEMPORARY CHAIN LINK FENCE	LF	495
SS9999	PROTECTIVE MATS	SY	6948

SP = SPECIAL PROVISION TO STANDARD SPECIFICATION. REFER TO CONTRACT DOCUMENTS FOR DETAILS.

SS = SPECIAL SPECIFICATION. REFER TO CONTRACT DOCUMENTS FOR DETAILS.

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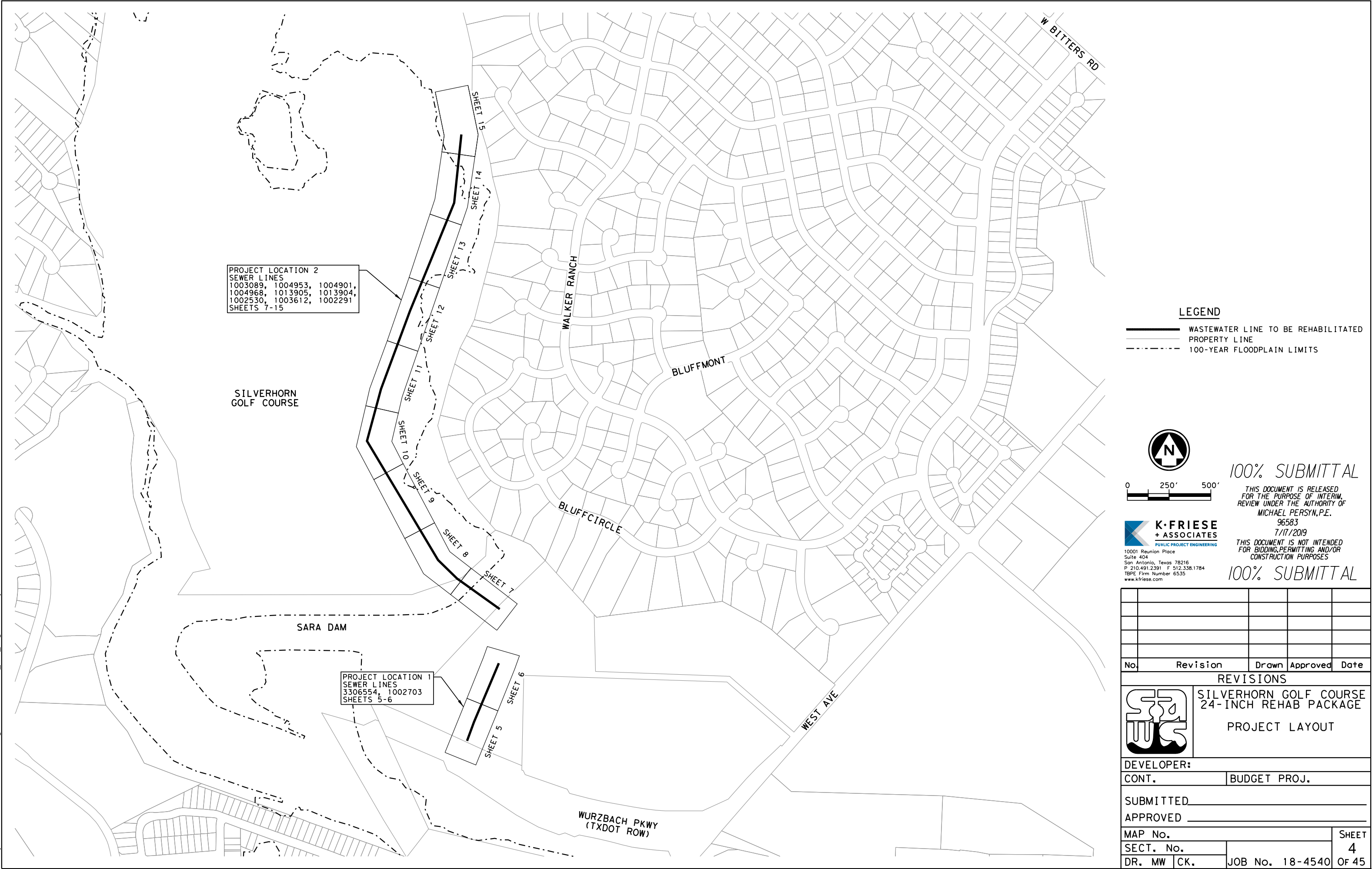
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No.	Revision	Drawn	Approved	Date
REVISIONS				
		SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE		
		PROJECT SPECIFIC NOTES AND QUANTITIES		
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 3 Of 45
SECT. No.				
DR. MW	CK.	JOB No. 18-4540		

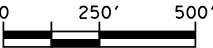


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LEGEND

- WASTEWATER LINE TO BE REHABILITATED
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS



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REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
PROJECT LAYOUT

DEVELOPER:			
CONT.		BUDGET PROJ.	
SUBMITTED_____			
APPROVED _____			
MAP No.			SHEET 4
SECT. No.		JOB No. 18-4540	
DR. MW	CK.		OF 45







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ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
851	ADJUST EXISTING MANHOLES	EA	1
866	SEWER MAIN TELEVISION INSPECTION (8" TO 24")	LF	267
SP901.1	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (24")	LF	267

LEGEND

EXISTING FIRE HYDRANT

PRIMARY CONSTRUCTION ACCESS

SECONDARY CONSTRUCTION ACCESS

WASTEWATER LINE TO BE REHABILITATED

EXIST SERVICE LINE

EXIST OVERHEAD UTILITIES

EXIST UNDERGROUND UTILITIES

EXIST STORM DRAIN

EXIST WATERLINE

EXIST WASTEWATER LINE

EXIST GAS LINE

PROPERTY LINE

100-YEAR FLOODPLAIN LIMITS

CONCEPTUAL BYPASS LINE

MH 53196

HORIZONTAL SCALE  
0 20' 40'

VERTICAL SCALE  
0 5' 10'

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No.	Revision	Drawn	Approved	Date			
REVISIONS							
SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE CIPP PROJECT LOCATION 1 STA 7+00 TO END (2 OF 2)							
DEVELOPER:							
CONT.		BUDGET PROJ.					
SUBMITTED							
APPROVED							
MAP No.				SHEET 6			
SECT. No.							
DR. MW	CK.	JOB No. 18-4540		OF 45			





MH 53151

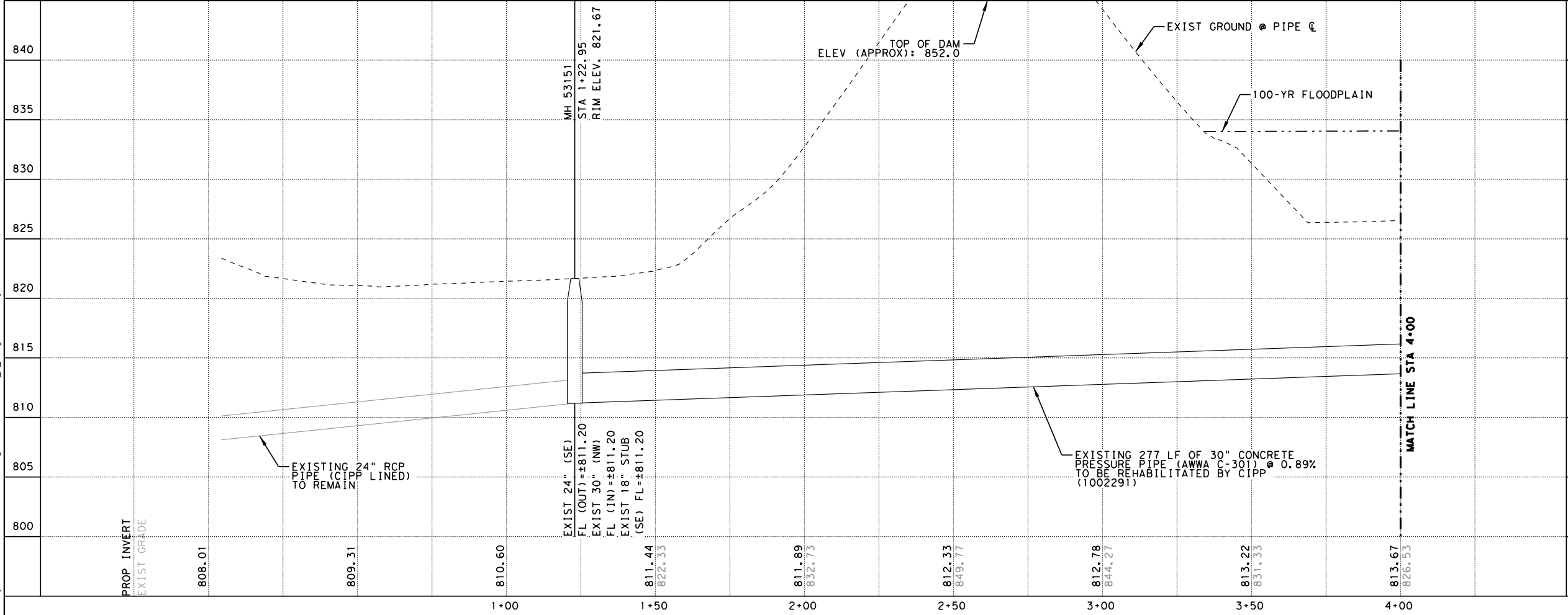


		ESTIMATED QUANTITIES	
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
866	SEWER MAIN TELEVISION INSPECTION (27" AND LARGER)	LF	277
SP901.2	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (30")	LF	277
SP1103.5	OBSTRUCTION REMOVAL BY REMOTE DEVICE, 21" OR 24" DIAMETER, ALL DEPTHS	EA	1

LEGEND

- EXISTING FIRE HYDRANT
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- WASTEWATER LINE TO BE REHABILITATED
- EXIST SERVICE LINE
- EXIST OVERHEAD UTILITIES
- EXIST UNDERGROUND UTILITIES
- EXIST STORM DRAIN
- EXIST WATERLINE
- EXIST WASTEWATER LINE
- EXIST GAS LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- CONCEPTUAL BYPASS LINE

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HORIZONTAL SCALE  
0 20' 40'

VERTICAL SCALE  
0 5' 10'

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No.	Revision	Drawn	Approved	Date

**SILVERHORN GOLF COURSE**  
24-INCH REHAB PACKAGE  
CIPP  
PROJECT LOCATION 2  
BEGIN TO STA 4+00  
(1 OF 9)

DEVELOPER:

CONT.	BUDGET PROJ.
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SUBMITTED \_\_\_\_\_

APPROVED \_\_\_\_\_

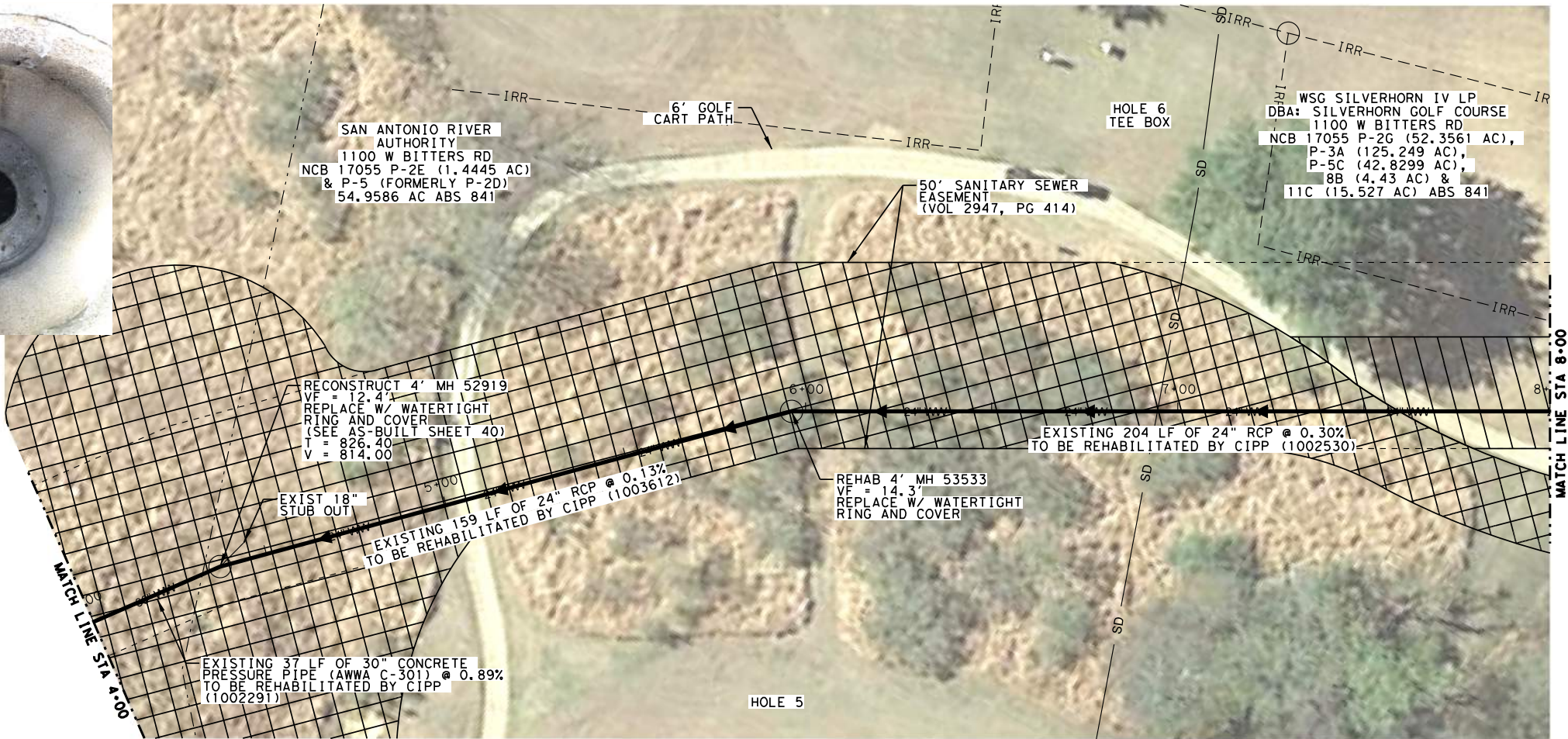
MAP No.	SHEET <b>7</b>		
SECT. No.			
DR. MW	CK.	JOB No. 18-4540	OF 45



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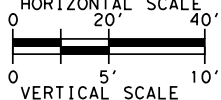


ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
851	ADJUST EXISTING MANHOLES	EA	1
855	RECONSTRUCTION OF EXISTING MANHOLES	EA	1
866	SEWER MAIN TELEVISION INSPECTION (8" TO 24")	LF	363
866	SEWER MAIN TELEVISION INSPECTION (27" AND LARGER)	LF	37
SP901.1	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (24")	LF	363
SP901.2	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (30")	LF	37
SS910.1	MANHOLE REHABILITATION (STANDARD MANHOLES UP TO 5' DIA.)	VF	14.3
SP1103.5	OBSTRUCTION REMOVAL BY REMOTE DEVICE, 21" OR 24" DIAMETER, ALL DEPTHS	EA	2

- NOTES:
- REFER TO SPECIAL CONDITIONS FOR MILESTONE LIMITATIONS ALONG HOLE 6.

LEGEND

- EXISTING FIRE HYDRANT
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- WASTEWATER LINE TO BE REHABILITATED
- EXIST SERVICE LINE
- EXIST OVERHEAD UTILITIES
- EXIST UNDERGROUND UTILITIES
- EXIST STORM DRAIN
- EXIST WATERLINE
- EXIST WASTEWATER LINE
- EXIST GAS LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- CONCEPTUAL BYPASS LINE



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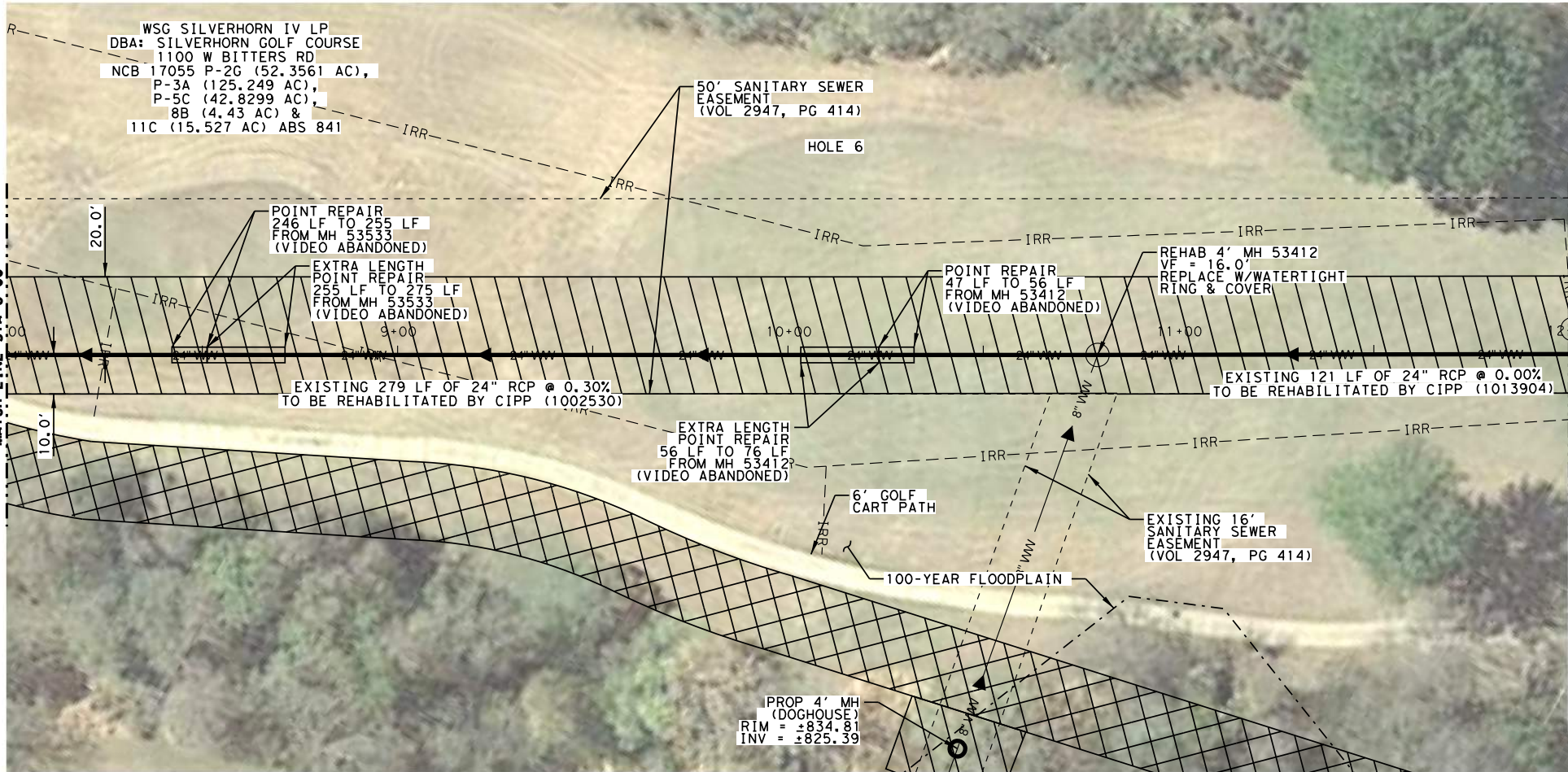
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No.	Revision	Drawn	Approved	Date
REVISIONS				
	SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE CIPP PROJECT LOCATION 2 STA 4+00 TO 8+00 (2 OF 9)			
	DEVELOPER:			
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 8
SECT. No.				
DR. MW	CK.	JOB No. 18-4540		OF 45



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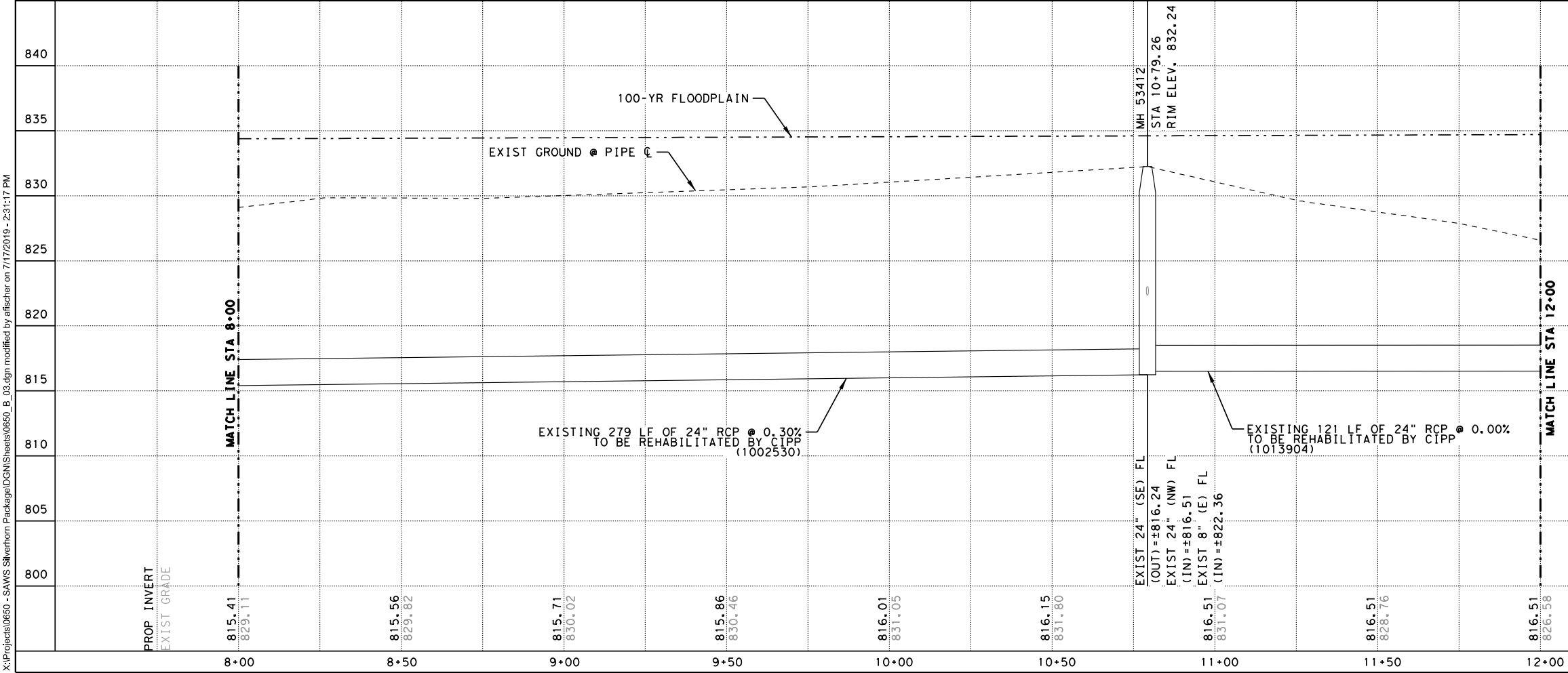


ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	2
851	ADJUST EXISTING MANHOLES	EA	1
852	4' DIA. SANITARY SEWER MANHOLE	EA	1
852	EXTRA DEPTH MANHOLE	VF	3.4
866	SEWER MAIN TELEVISION INSPECTION (8" TO 24")	LF	400
SP901.1	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (24")	LF	400
SS910.1	MANHOLE REHABILITATION (STANDARD MANHOLES UP TO 5' DIA.)	VF	16.0
SP1103.2	POINT REPAIRS FOR 24" DIAMETER (10'-14' DEPTH)	EA	2
SP1103.4	EXTRA LENGTH POINT REPAIRS FOR 24" DIAMETER (10'-14' DEPTH)	LF	40
SP1103.5	OBSTRUCTION REMOVAL BY REMOTE DEVICE, 21" OR 24" DIAMETER, ALL DEPTHS	EA	1

- NOTE:
- CONTRACTOR IS ADVISED THAT GROUNDWATER MAY BE PRESENT IN EXCAVATIONS. CONTROL OF GROUNDWATER SHALL BE NSPI PER SAWS STANDARD SPECIFICATION NO. 804 EXCAVATION, TRENCHING, AND BACKFILL.
  - REFER TO SPECIAL CONDITIONS FOR MILESTONE LIMITATIONS ALONG HOLE 6.

LEGEND

- EXISTING FIRE HYDRANT
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- WASTEWATER LINE TO BE REHABILITATED
- EXIST SERVICE LINE
- EXIST OVERHEAD UTILITIES
- EXIST UNDERGROUND UTILITIES
- EXIST STORM DRAIN
- EXIST WATERLINE
- EXIST WASTEWATER LINE
- EXIST GAS LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- CONCEPTUAL BYPASS LINE




HORIZONTAL SCALE 20' 40'  
VERTICAL SCALE 5' 10'  
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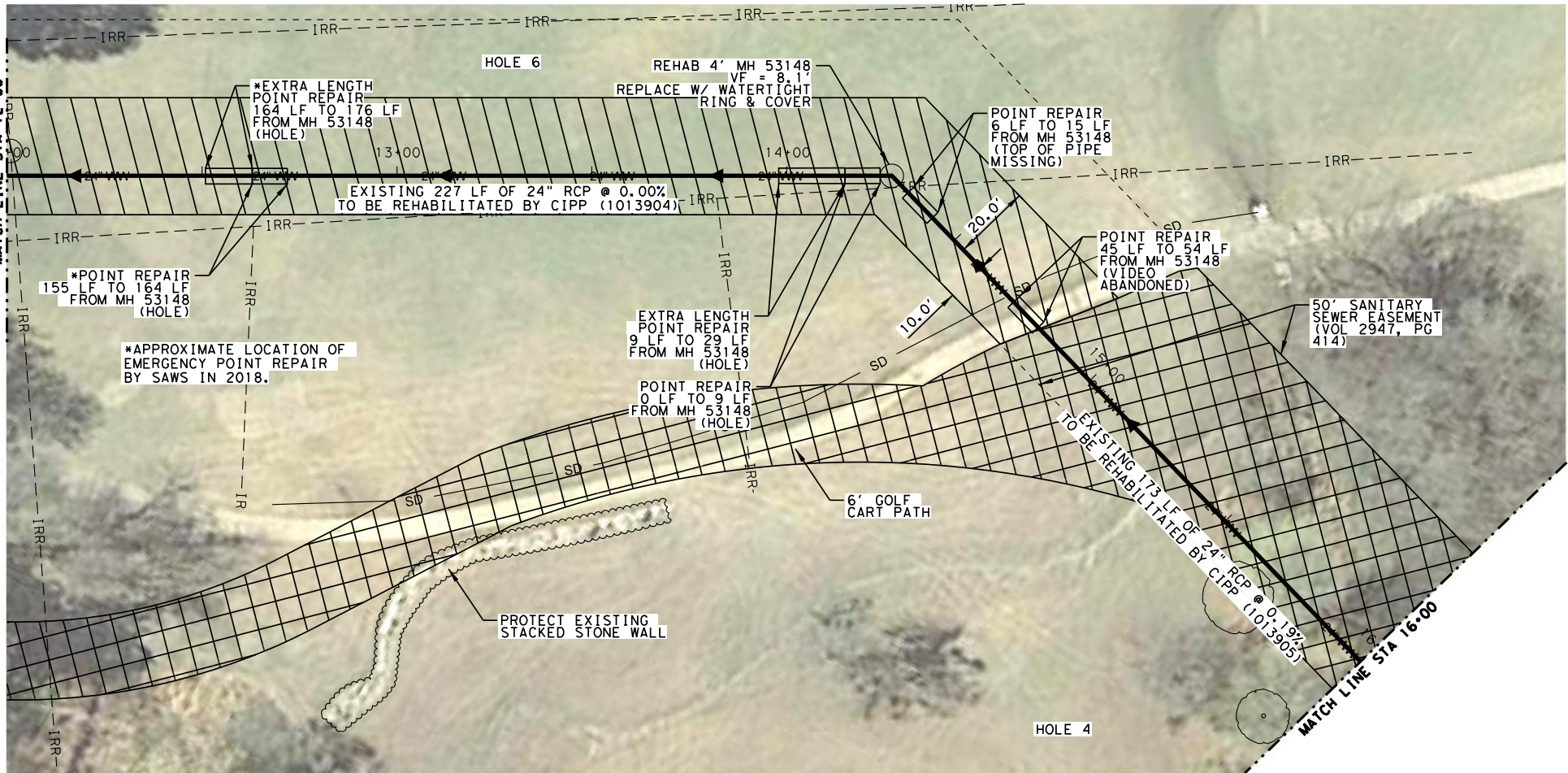
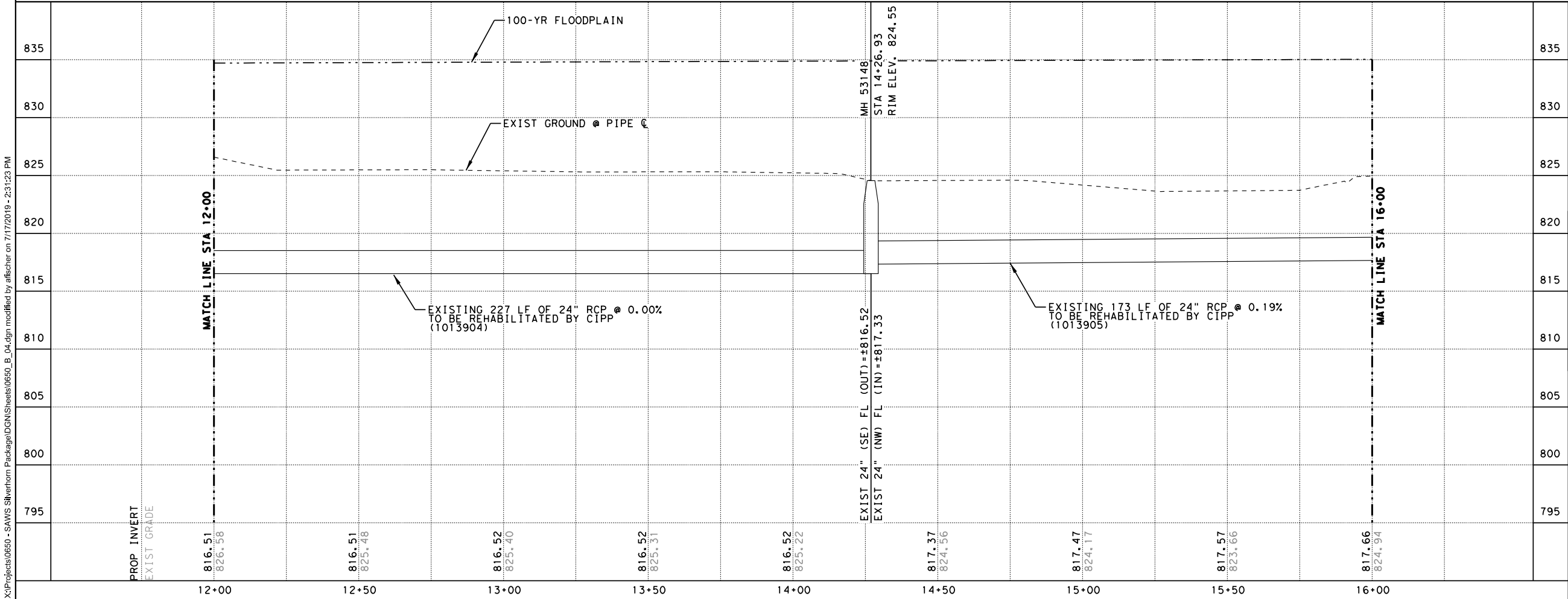
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No.	Revision	Drawn	Approved	Date
REVISIONS				
		SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE CIPP PROJECT LOCATION 2 STA 8+00 TO 12+00 (3 OF 9)		
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 9 OF 45
SECT. No.		JOB No. 18-4540		
DR. MW	CK.			



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ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	68
851	ADJUST EXISTING MANHOLES	EA	1
866	SEWER MAIN TELEVISION INSPECTION (8" TO 24")	LF	400
SP901.1	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (24")	LF	400
SS910.1	MANHOLE REHABILITATION (STANDARD MANHOLES UP TO 5' DIA.)	VF	8.1
SP1103.1	POINT REPAIRS FOR 24" DIAMETER (6'-10' DEPTH)	EA	4
SP1103.3	EXTRA LENGTH POINT REPAIRS FOR 24" DIAMETER (6'-10' DEPTH)	LF	32
SP1103.5	OBSTRUCTION REMOVAL BY REMOTE DEVICE, 21" OR 24" DIAMETER, ALL DEPTHS	EA	1

- NOTE:
- CONTRACTOR IS ADVISED THAT GROUNDWATER MAY BE PRESENT IN EXCAVATIONS. CONTROL OF GROUNDWATER SHALL BE NSPI PER SAWS STANDARD SPECIFICATION NO. 804 EXCAVATION, TRENCHING, AND BACKFILL.
  - REFER TO SPECIAL CONDITIONS FOR MILESTONE LIMITATIONS ALONG HOLE 6.

LEGEND	
	EXISTING FIRE HYDRANT
	PRIMARY CONSTRUCTION ACCESS
	SECONDARY CONSTRUCTION ACCESS
	WASTEWATER LINE TO BE REHABILITATED
	EXIST SERVICE LINE
	EXIST OVERHEAD UTILITIES
	EXIST UNDERGROUND UTILITIES
	EXIST STORM DRAIN
	EXIST WATERLINE
	EXIST WASTEWATER LINE
	EXIST GAS LINE
	PROPERTY LINE
	100-YEAR FLOODPLAIN LIMITS
	CONCEPTUAL BYPASS LINE

HORIZONTAL SCALE 20' 40'

VERTICAL SCALE 5' 10'

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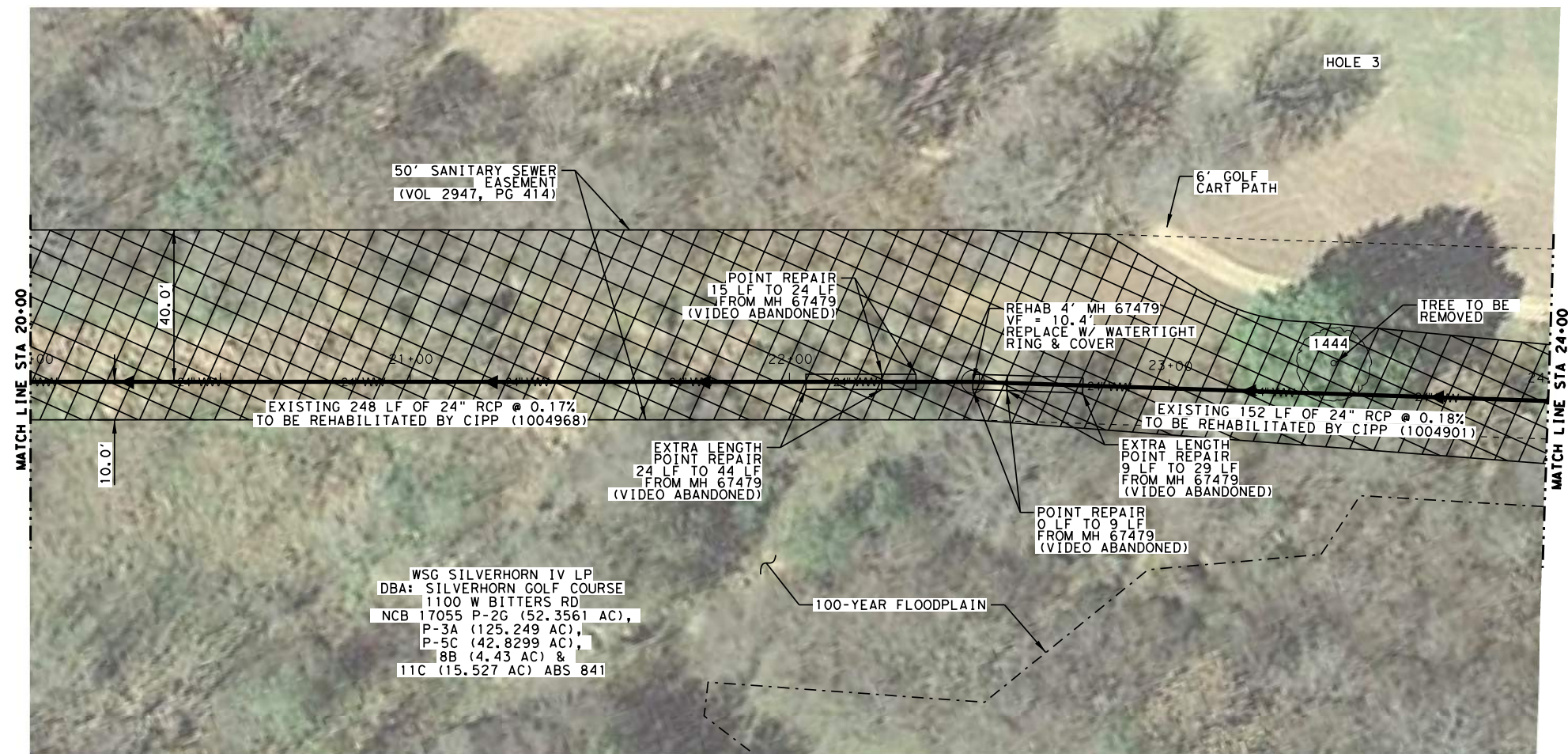
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No.	Revision	Drawn	Approved	Date
REVISIONS				
		SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE CIPP PROJECT LOCATION 2 STA 12+00 TO 16+00 (4 OF 9)		
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 10
SECT. No.				
DR. MW	CK.	JOB No. 18-4540		OF 45









ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
550	TRENCH EXCAVATION SAFETY PROTECTION	LF	30
851	ADJUST EXISTING MANHOLES	EA	1
866	SEWER MAIN TELEVISION INSPECTION (8" TO 24")	LF	400
SP901.1	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (24")	LF	400
SS910.1	MANHOLE REHABILITATION (STANDARD MANHOLES UP TO 5' DIA.)	VF	10.4
SP1103.1	POINT REPAIRS FOR 24" DIAMETER (6'-10' DEPTH)	EA	1
SP1103.2	POINT REPAIRS FOR 24" DIAMETER (10'-14' DEPTH)	EA	1
SP1103.3	EXTRA LENGTH POINT REPAIRS FOR 24" DIAMETER (6'-10' DEPTH)	LF	20
SP1103.4	EXTRA LENGTH POINT REPAIRS FOR 24" DIAMETER (10'-14' DEPTH)	LF	20
SP1103.5	OBSTRUCTION REMOVAL BY REMOTE DEVICE, 21" OR 24" DIAMETER, ALL DEPTHS	EA	1

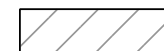
### LEGEND



EXISTING FIRE HYDRANT

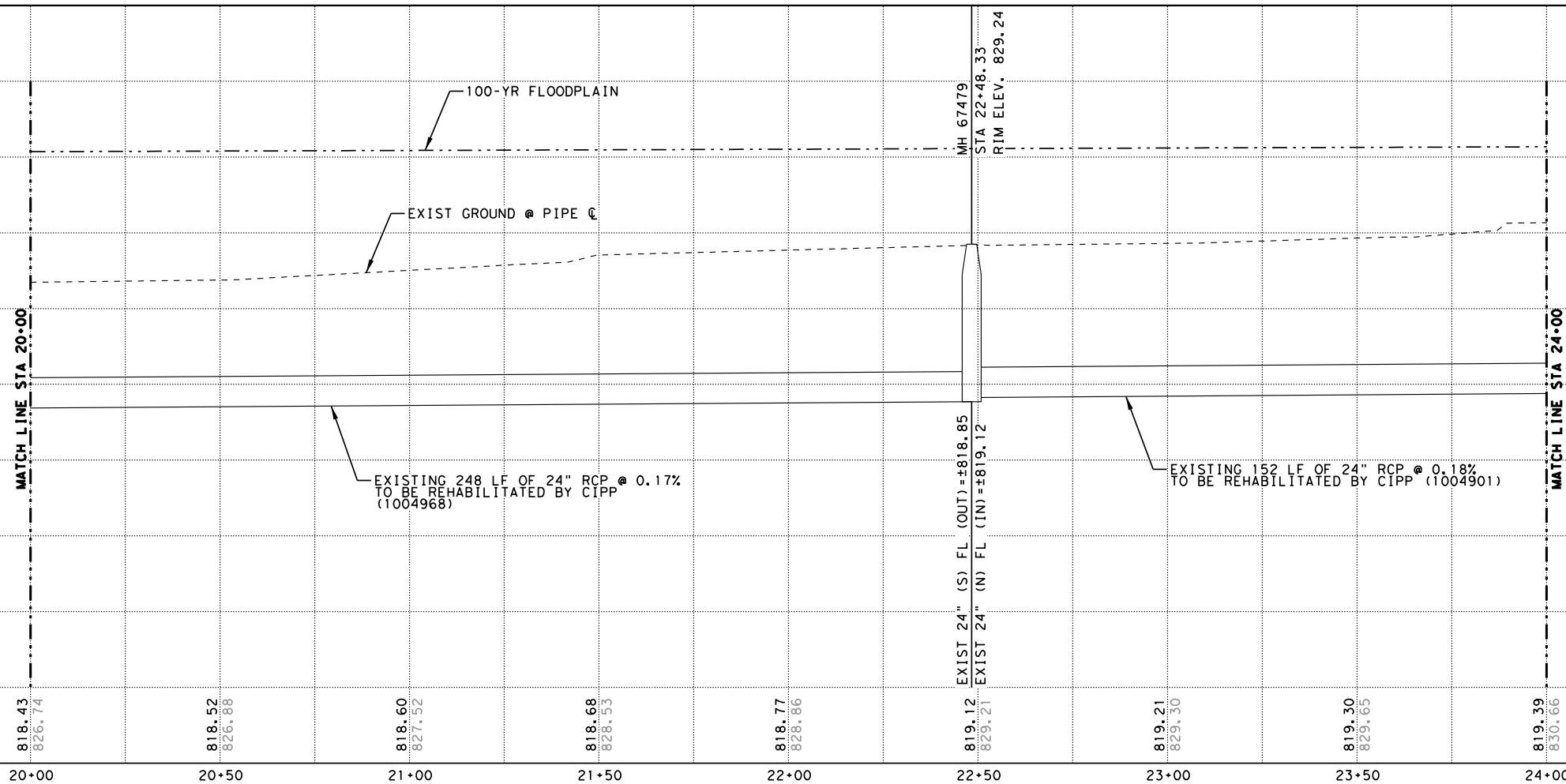


PRIMARY CONSTRUCTION ACCESS



### SECONDARY CONSTRUCTION ACCESS

=====	WASTEWATER LINE TO BE REHABILITATED
-----	EXIST SERVICE LINE
-----OHE-----	EXIST OVERHEAD UTILITIES
-----UGE-----	EXIST UNDERGROUND UTILITIES
-----X" SD-----	EXIST STORM DRAIN
-----X" WL-----	EXIST WATERLINE
-----X" WW-----	EXIST WASTEWATER LINE
-----X"G-----	EXIST GAS LINE
-----	PROPERTY LINE
-----	100-YEAR FLOODPLAIN LIMITS
-----	CONCEPTUAL BYPASS LINE



HORIZONTAL SCALE

0 20' 40'

0 5' 10'

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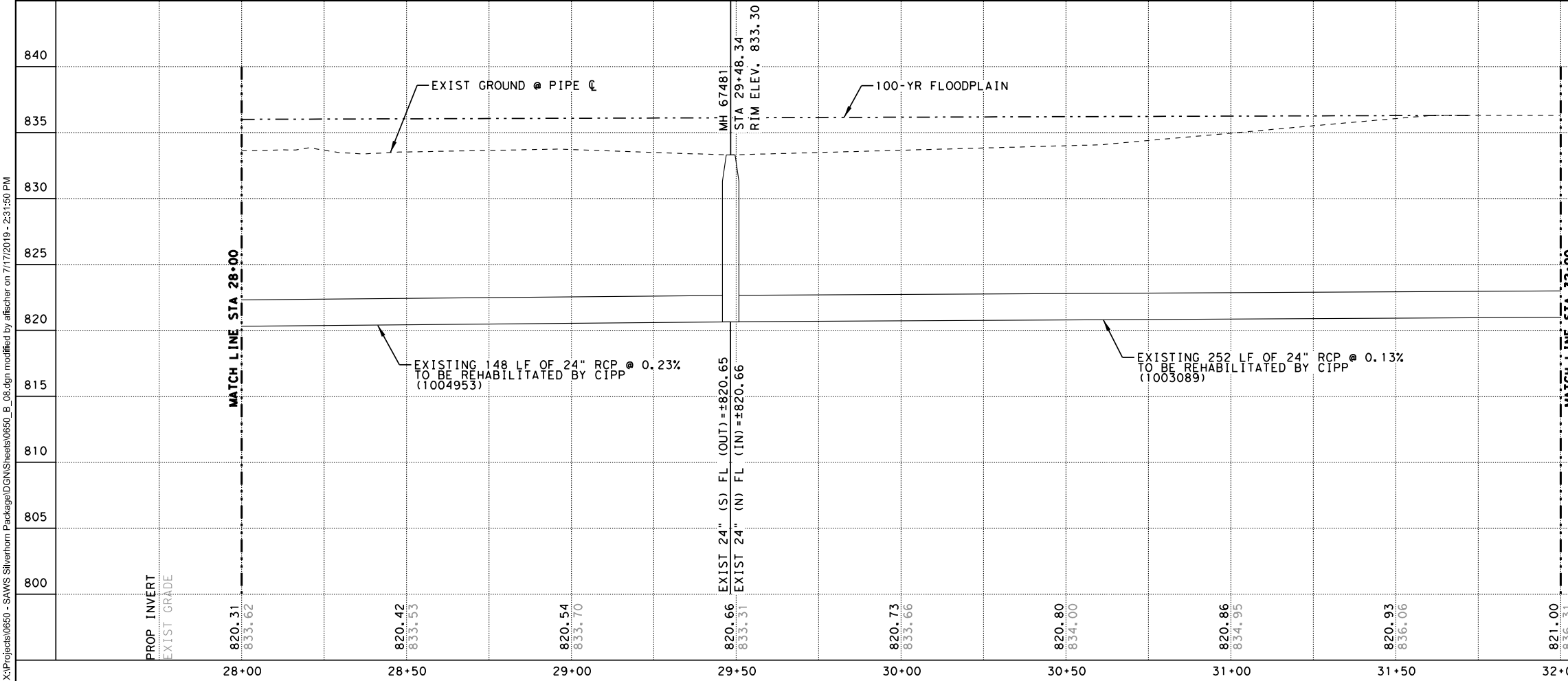
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	No.	Revision	Drawn	Approved	Date
5	<div style="text-align: center;"> <b>REVISIONS</b> </div>				
			<b>SILVERHORN GOLF COURSE</b> <b>24-INCH REHAB PACKAGE</b> <b>CIPP</b> <b>PROJECT LOCATION 2</b> <b>STA 20+00 TO 24+00</b> <b>(6 OF 9)</b>		
5	<b>DEVELOPER:</b>				
	<b>CONT.</b>		<b>BUDGET PROJ.</b>		
0	<b>SUBMITTED</b> _____				
	<b>APPROVED</b> _____				
	<b>MAP No.</b>				<b>SHEET</b> <div style="font-size: 2em; text-align: center;">12</div> <b>OF 45</b>
	<b>SECT. No.</b>		<b>JOB No. 18-4540</b>		
	<b>DR. MW</b>	<b>CK.</b>			







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ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
851	ADJUST EXISTING MANHOLES	EA	1
866	SEWER MAIN TELEVISION INSPECTION (8" TO 24")	LF	400
SP901.1	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (24")	LF	400
SS910.1	MANHOLE REHABILITATION (STANDARD MANHOLES UP TO 5' DIA.)	VF	12.7
SP1103.5	OBSTRUCTION REMOVAL BY REMOTE DEVICE, 21" OR 24" DIAMETER, ALL DEPTHS	EA	1

LEGEND	
	EXISTING FIRE HYDRANT
	PRIMARY CONSTRUCTION ACCESS
	SECONDARY CONSTRUCTION ACCESS
	WASTEWATER LINE TO BE REHABILITATED
	EXIST SERVICE LINE
	EXIST OVERHEAD UTILITIES
	EXIST UNDERGROUND UTILITIES
	EXIST STORM DRAIN
	EXIST WATERLINE
	EXIST WASTEWATER LINE
	EXIST GAS LINE
	PROPERTY LINE
	100-YEAR FLOODPLAIN LIMITS
	CONCEPTUAL BYPASS LINE

HORIZONTAL SCALE 20'  
VERTICAL SCALE 5'  
**K·FRIESE + ASSOCIATES**  
PUBLIC PROJECT ENGINEERING  
10001 Reunion Place  
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San Antonio, Texas 78216  
P 210.491.2391 F 512.338.1784  
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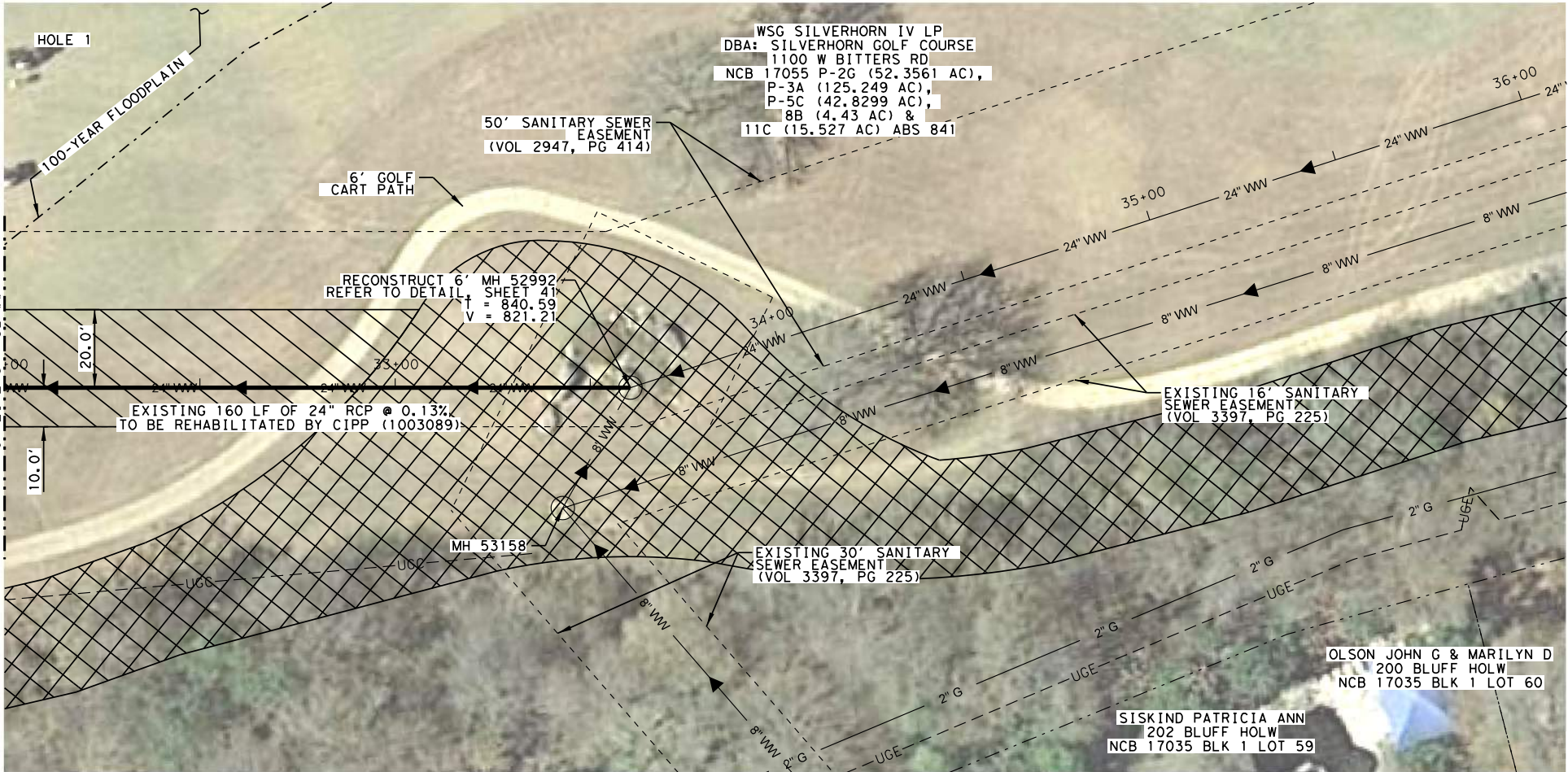
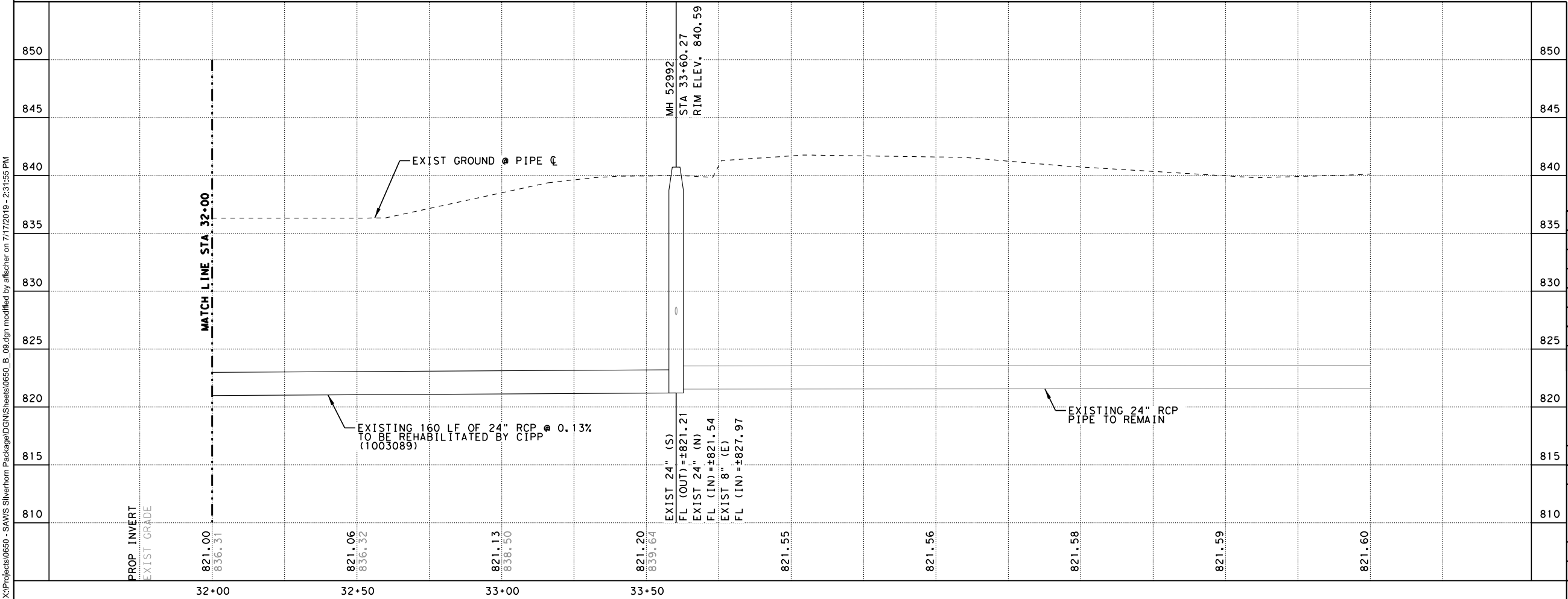
No.	Revision	Drawn	Approved	Date
815				
810				
805				
800				

**SILVERHORN GOLF COURSE**  
**24-INCH REHAB PACKAGE**  
**CIPP**  
**PROJECT LOCATION 2**  
**STA 28+00 TO 32+00**  
**(8 OF 9)**

DEVELOPER:	
CONT.	BUDGET PROJ.
SUBMITTED _____	
APPROVED _____	
MAP No. _____	
SECT. No. _____	
DR. MW	CK.
JOB No. 18-4540	
SHEET 14 OF 45	



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ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
855	RECONSTRUCTION OF EXISTING MANHOLES	EA	1
866	SEWER MAIN TELEVISION INSPECTION (8" TO 24")	LF	160
SP901.1	INSTALL CIPP SANITARY SEWER PIPE (HOT WATER) (24")	LF	160

NOTE:  
1. SEE SHEET 41 FOR MH 52992 RECONSTRUCTION DETAILS.

LEGEND	
	EXISTING FIRE HYDRANT
	PRIMARY CONSTRUCTION ACCESS
	SECONDARY CONSTRUCTION ACCESS
	WASTEWATER LINE TO BE REHABILITATED
	EXIST SERVICE LINE
	EXIST OVERHEAD UTILITIES
	EXIST UNDERGROUND UTILITIES
	EXIST STORM DRAIN
	EXIST WATERLINE
	EXIST WASTEWATER LINE
	EXIST GAS LINE
	PROPERTY LINE
	100-YEAR FLOODPLAIN LIMITS
	CONCEPTUAL BYPASS LINE

HORIZONTAL SCALE 20' 40'  
VERTICAL SCALE 5' 10'

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825				
820				
815				
810				

**REVISIONS**  
**SILVERHORN GOLF COURSE**  
**24-INCH REHAB PACKAGE**  
**CIPP**  
**PROJECT LOCATION 2**  
**STA 32+00 TO END**  
**(9 OF 9)**

**DEVELOPER:**  
**CONT.** **BUDGET PROJ.**

**SUBMITTED**  
**APPROVED**

**MAP No.**  
**SECT. No.**  
**DR. MW** **CK.** **JOB No. 18-4540**

**SHEET 15**  
**OF 45**





LEGEND

- PROPOSED BYPASS ROUTE
- LINE TO BE REHABILITATED BY CIPP
- EXISTING SANITARY SEWER LINE
- 100-YEAR FLOODPLAIN

BYPASS FLOW DATA

SUCTION MH	53357
SIZE	24 INCHES
ADWF	3.2 MGD
PDWF	4.3 MGD
PWWF	7.1 MGD

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No.	Revision	Drawn	Approved	Date
REVISIONS				
		SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE  OVERALL BYPASS PLAN		
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 16 OF 45
SECT. No.		JOB No. 18-4540		
DR. MW	CK.			



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NOTES:

- CONTRACTOR MUST NOTIFY AND/OR CONTACT SAWS INSPECTION AT 210-233-3500 48 HOURS BEFORE ANY OF THE FOLLOWING ACTIVITIES TAKE PLACE:
  - NOTIFICATION OF PRE-TELEVISION INSPECTION
  - NOTIFICATION OF BYPASS PUMPING SETUP OPERATIONS
  - NOTIFICATION OF THE PIPE INSTALLATION
- CONTRACTOR MUST FIELD VERIFY ALL DEPTHS, DISTANCES, PIPE SIZES, AND GRADES BEFORE START OF CONSTRUCTION.
- BYPASS PIPING SHALL BE BURIED AT CROSSINGS WITH GOLF CART PATH IN ORDER TO MAINTAIN TRAFFIC.
- EXISTING UTILITIES ARE NOT SHOWN FOR CLARITY. CONTRACTOR RESPONSIBLE FOR CALLING IN LOCATES AND SHALL EXERCISE CAUTION IN AREAS OF EXCAVATION.
- FLOWS FOR LINES 24" AND GREATER WERE PROVIDED BY SAWS. FLOWS FOR SMALL DIAMETER LINES ARE TO BE DETERMINED BY CONTRACTOR PER SPECIFICATION 864-S1.
- CONTRACTOR SHALL CONTACT THE FOLLOWING TO COORDINATE WORK AT THE PROJECT SITE:

A. SILVERHORN:	MR. NEIL THRAILKILL AT 210-495-1689
B. SARA:	MR. JOSHUA SPENCER AT 210-302-3237
C. PARK AT WEST AVE:	MS. SARAH ESPINOZA AT 210-374-1945
D. TXDOT INSPECTOR:	MR. MIKE RODRIGUEZ AT 210-379-7088
	MR. JOE IBARRA AT 210-844-8317 (CELL)
	210-615-6334 (OFFICE)
- SEWER BYPASS PIPE ROUTED THROUGH CULVERTS SHALL CONSIST OF HDPE PIPE (DR 17 MINIMUM). PIPING SHALL EXCEED MINIMUM REQUIREMENTS WHERE NEEDED TO MEET DISCHARGE PRESSURE IN CONTRACTOR'S APPROVED BYPASS PLAN.

LEGEND

- EXISTING FIRE HYDRANT
- WASTEWATER LINE TO BE REHABILITATED
- EXIST WASTEWATER LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- CONCEPTUAL BYPASS LINE
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS



0 50 100

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REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
PROPOSED BYPASS PLAN  
(1 OF 5)

DEVELOPER:

CONT. BUDGET PROJ.

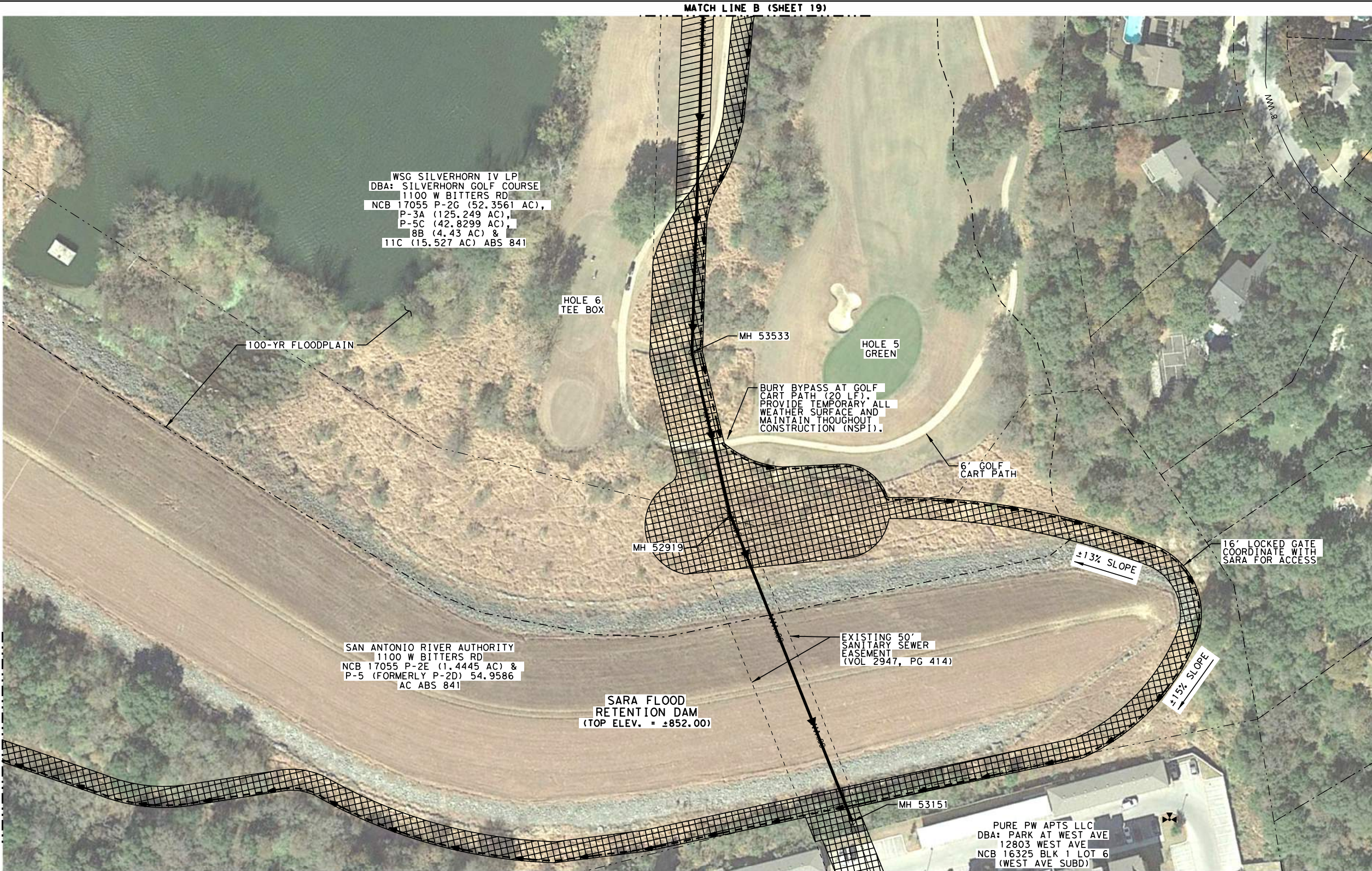
SUBMITTED

APPROVED

MAP No.		SHEET
SECT. No.		17
DR. MW	CK.	JOB No. 18-4540
		OF 45



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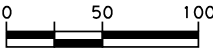


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  - PARK AT WEST AVE: MS. SARAH ESPINOZA AT 210-374-1945  
MR. MIKE RODRIGUEZ AT 210-379-7088

LEGEND

- EXISTING FIRE HYDRANT
- WASTEWATER LINE TO BE REHABILITATED
- EXIST WASTEWATER LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- CONCEPTUAL BYPASS LINE
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS



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REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
PROPOSED BYPASS PLAN  
(2 OF 5)

DEVELOPER:

CONT. BUDGET PROJ.

SUBMITTED

APPROVED

MAP No.		SHEET
SECT. No.		18
DR. MW	CK.	JOB No. 18-4540 OF 45



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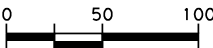
NOTES:

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  - SARA: MR. JOSHUA SPENCER AT 210-302-3237

WSG SILVERHORN IV LP  
DBA: SILVERHORN GOLF COURSE  
1100 W BITTERS RD  
NCB 17055 P-2G (52.3561 AC),  
P-3A (125.249 AC),  
P-5C (42.8299 AC),  
8B (4.43 AC) &  
11C (15.527 AC) ABS 841

LEGEND

- EXISTING FIRE HYDRANT
- WASTEWATER LINE TO BE REHABILITATED
- EXIST WASTEWATER LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- CONCEPTUAL BYPASS LINE
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS



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No.	Revision	Drawn	Approved	Date

REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
PROPOSED BYPASS PLAN  
(3 OF 5)

DEVELOPER:

CONT. BUDGET PROJ.

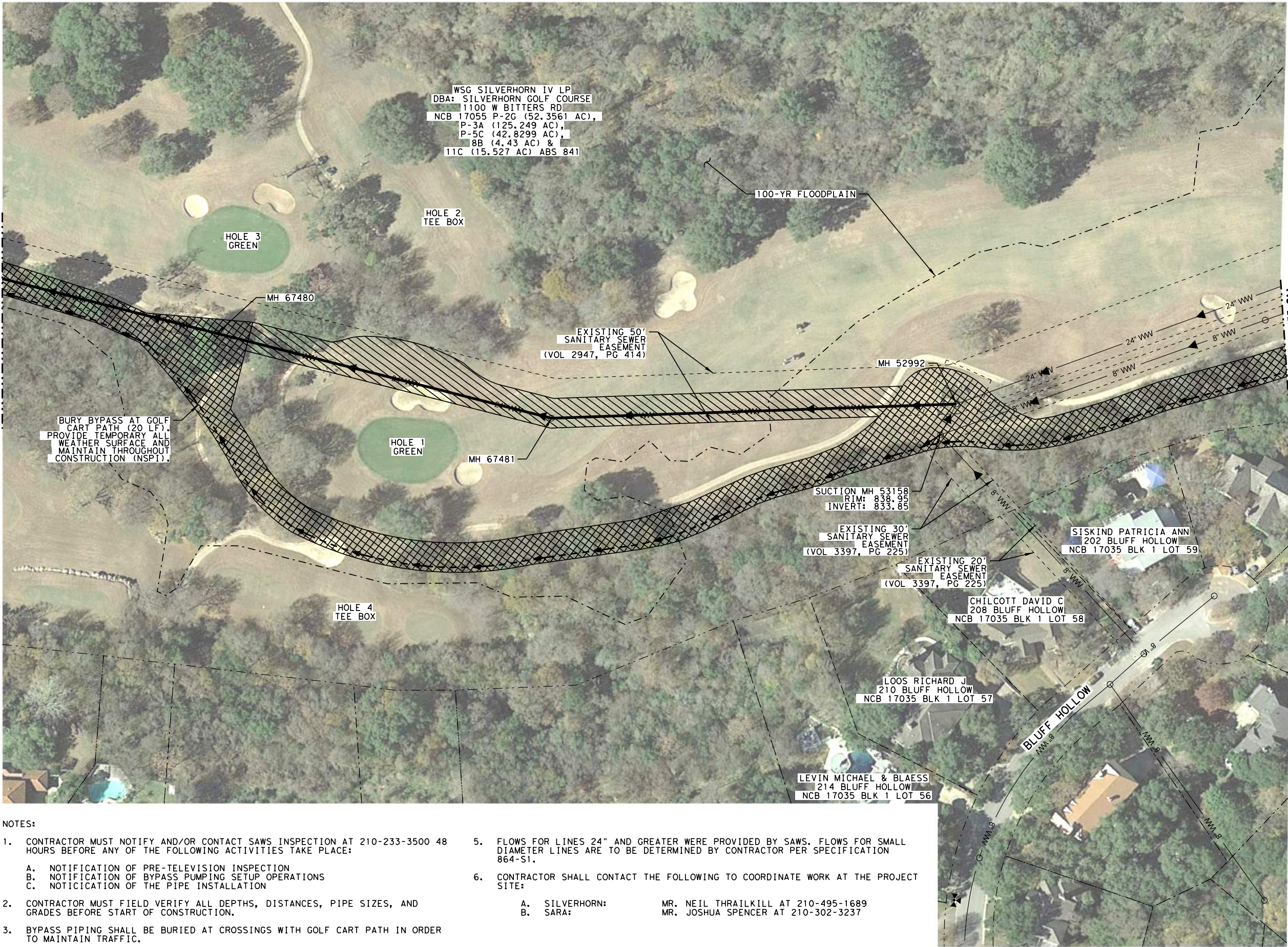
SUBMITTED

APPROVED

MAP No.		SHEET
SECT. No.		19
DR. MW	CK.	JOB No. 18-4540 OF 45



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NOTES:

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A. SILVERHORN:	MR. NEIL THRAILKILL AT 210-495-1689
B. SARA:	MR. JOSHUA SPENCER AT 210-302-3237

LEGEND

- EXISTING FIRE HYDRANT
- WASTEWATER LINE TO BE REHABILITATED
- EXIST WASTEWATER LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- CONCEPTUAL BYPASS LINE
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS



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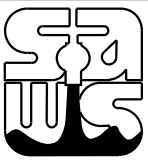
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REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
PROPOSED BYPASS PLAN  
(4 OF 5)

DEVELOPER: \_\_\_\_\_

CONT. \_\_\_\_\_ BUDGET PROJ. \_\_\_\_\_

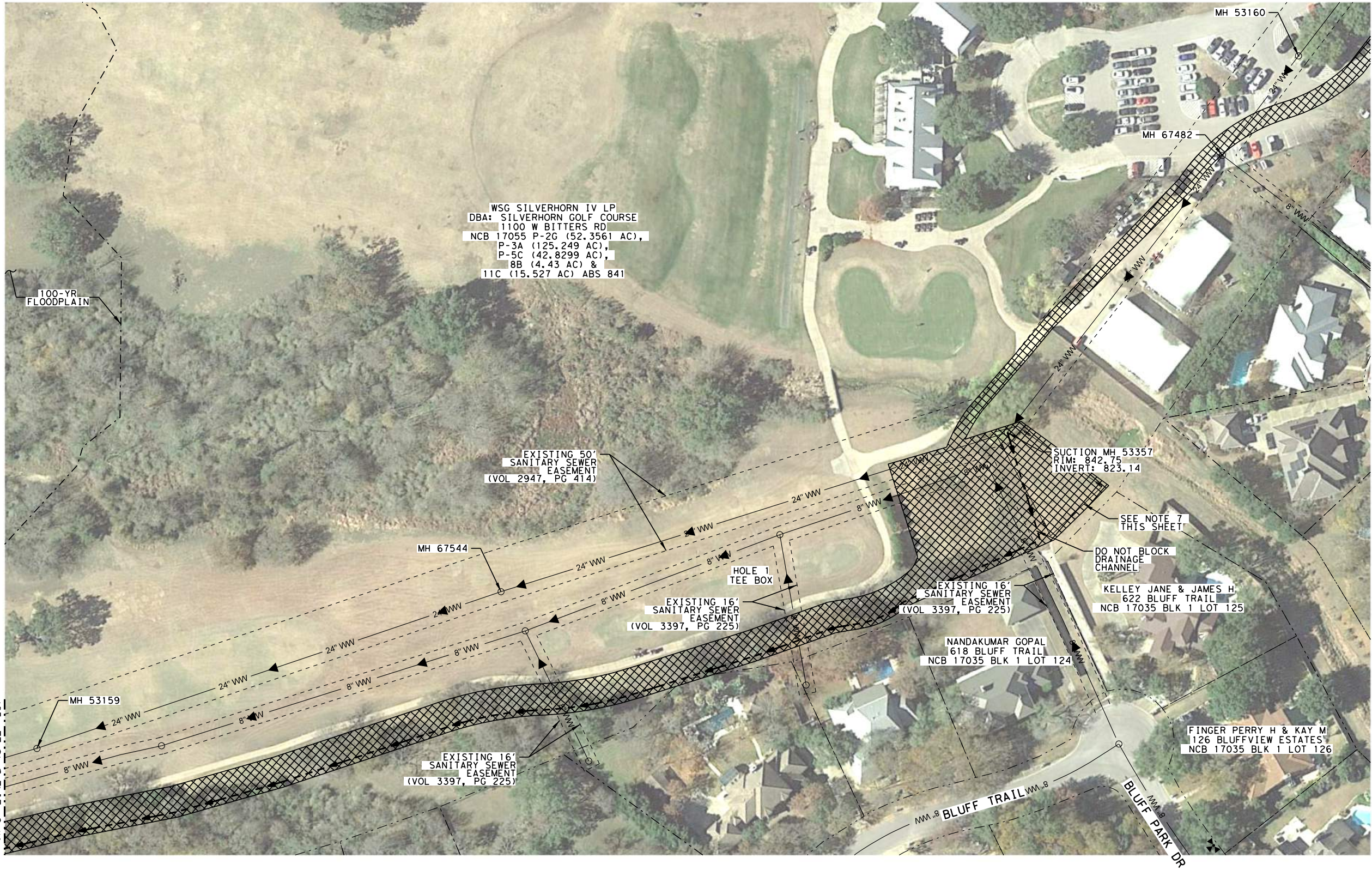
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APPROVED \_\_\_\_\_

MAP No.		SHEET
SECT. No.		20
DR. MW	CK.	JOB No. 18-4540 OF 45



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NOTES:

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- CONTRACTOR SHALL CONTACT THE FOLLOWING TO COORDINATE WORK AT THE PROJECT SITE:

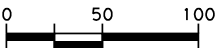
A. SILVERHORN:	MR. NEIL THRAILKILL AT 210-495-1689
B. SARA:	MR. JOSHUA SPENCER AT 210-302-3237
- CONTRACTOR SHALL SECURE BYPASS PUMPING EQUIPMENT WITH SCREENED 6' TALL CHAIN LINK FENCE.

BYPASS FLOW DATA

SUCTION MH 53357		
SIZE	24	INCHES
ADWF	3.2	MGD
PDWF	4.3	MGD
PWWF	7.1	MGD

LEGEND

- EXISTING FIRE HYDRANT
- WASTEWATER LINE TO BE REHABILITATED
- EXIST WASTEWATER LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- CONCEPTUAL BYPASS LINE
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS



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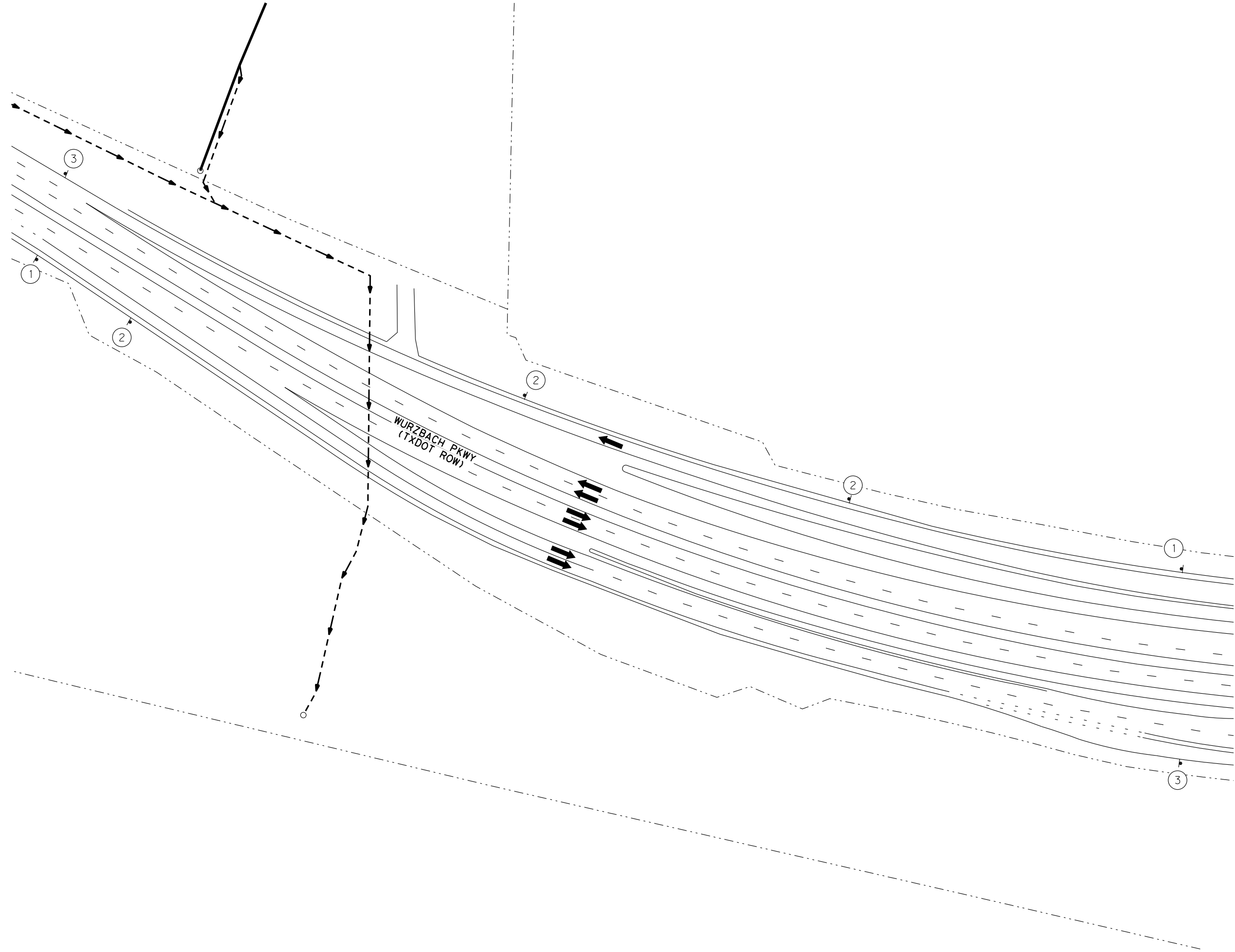


SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
PROPOSED BYPASS PLAN  
(5 OF 5)

DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 21 OF 45
SECT. No.				
DR. MW	CK.	JOB No. 18-4540		



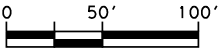
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LEGEND

- TEMPORARY SIGN
- TRAFFIC DIRECTION
- EXISTING STRIPING
- WASTEWATER LINE TO BE REHABILITATED
- CONCEPTUAL BYPASS LINE
- PARCELS

- 1 UTILITY WORK AHEAD CW21-7D 30" X 30"
- 2 TRUCKS ENTERING ROADWAY CW27-1T 48" X 48"
- 3 END ROAD WORK G20-2 36" X 18"



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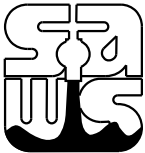
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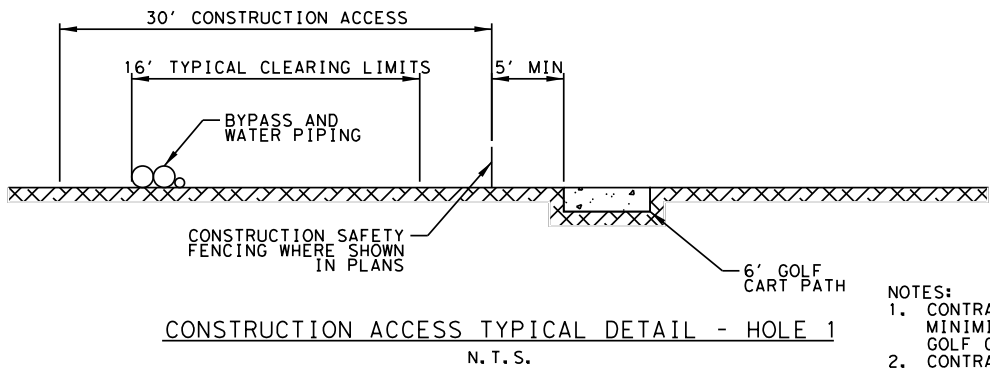
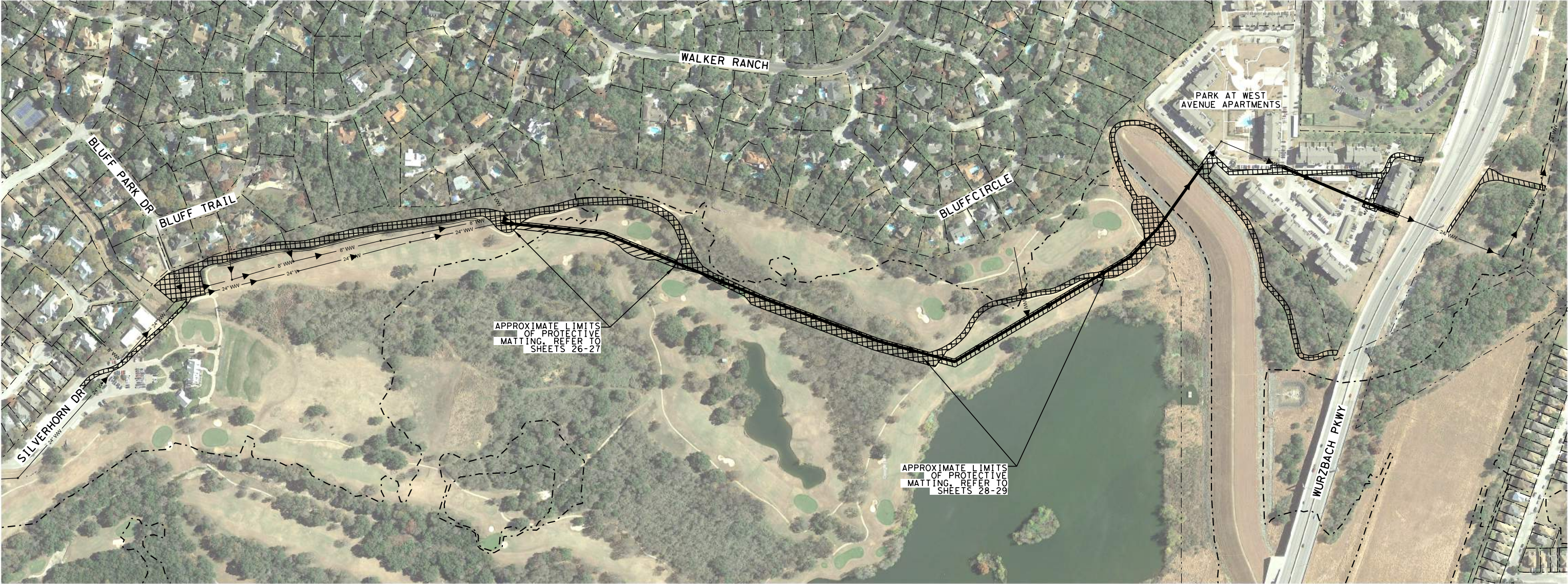
REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
TRAFFIC CONTROL PLAN

DEVELOPER:			
CONT.		BUDGET PROJ.	
SUBMITTED _____			
APPROVED _____			
MAP No.			SHEET 22 OF 45
SECT. No.			
DR. MW	CK.	JOB No. 18-4540	





- NOTES:
1. CONTRACTOR TO SELECT ROUTE TO MINIMIZE CLEARING. SEE NOTE 3 UNDER GOLF COURSE NOTES (SHEET 3).
  2. CONTRACTOR SHALL STAKE THE EDGES OF THE 30-FOOT PRIMARY ACCESS ROUTE AT 50-FOOT INTERVALS USING SURVEY LATH OR EQUIVALENT PRIOR TO CLEARING. CONTRACTOR SHALL COORDINATE WITH SAWS AND SILVERHORN GOLF COURSE TO SCHEDULE A WALK THROUGH FOR APPROVAL OF THE STAKED PRIMARY ACCESS AREA PRIOR TO CLEARING THE ACCESS AREA.

- LEGEND
- PRIMARY ACCESS ROUTE
  - SECONDARY CONSTRUCTION ACCESS ROUTE
  - LINE TO BE REHABILITATED BY CIPP
  - EXISTING SANITARY SEWER LINE
  - 100-YEAR FLOODPLAIN

- NOTES:
1. REFER TO GOLF COURSE NOTE 2 (SHEET 3) FOR ACCESS ROUTE INTENT.
  2. REFER TO SHEETS 24 - 31 FOR ACCESS AND RESTORATION DETAILS.
  3. REFER TO SHEETS 32 - 39 FOR TREE REMOVAL AND PRESERVATION DETAILS.



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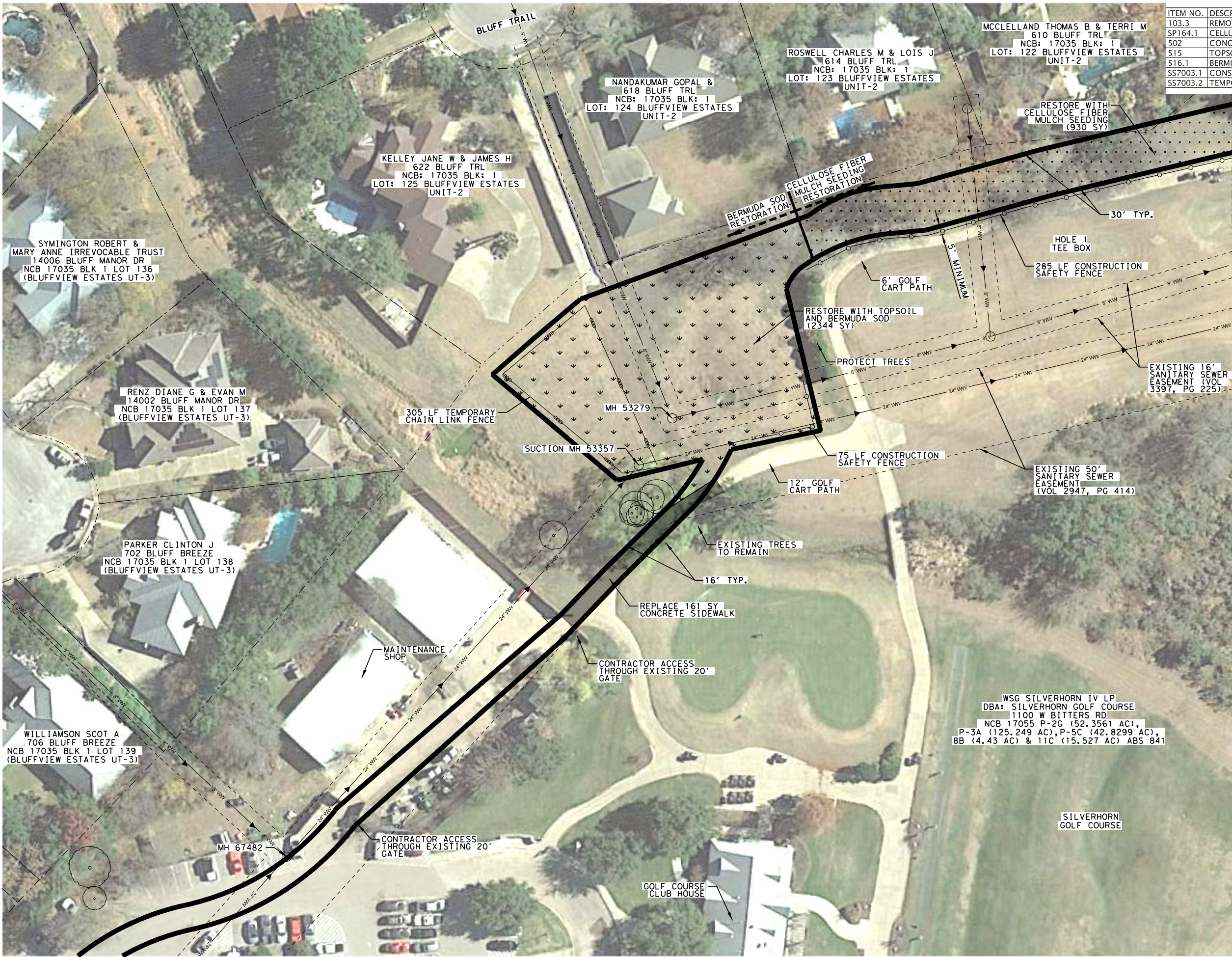
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TPE Firm Number 6535  
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No.	Revision	Drawn	Approved	Date

REVISIONS				
		SILVERHORN GOLF COURSE		
		24-INCH REHAB PACKAGE		
		OVERALL ACCESS ROUTE		

DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 23 OF 45
SECT. No.				
DR. MW	CK.	JOB No. 18-4540		

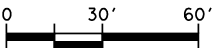




ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
103.3	REMOVE SIDEWALKS AND DRIVEWAYS (COSA SPEC)	SF	1453
SP164.1	CELLULOSE FIBER MULCH SEEDING (PERM) (TXDOT SPEC)	SY	930
502	CONCRETE SIDEWALK (COSA SPEC)	SY	161
515	TOPSOIL (4" THICK)	SY	2344
516.1	BERMUDA SODDING (COSA SPEC)	SY	2344
SS7003.1	CONSTRUCTION SAFETY FENCING	LF	360
SS7003.2	TEMPORARY CHAIN LINK FENCE	LF	305

LEGEND

- HYDROMULCHING
- SODDING AND TOPSOIL
- DRILL SEEDING
- CONCRETE REPLACEMENT
- PROTECTIVE MATTING
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- WASTEWATER LINE TO BE REHABILITATED
- EXIST WASTEWATER LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- TEMPORARY CHAIN LINK FENCE
- CONSTRUCTION SAFETY FENCE



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REVISIONS

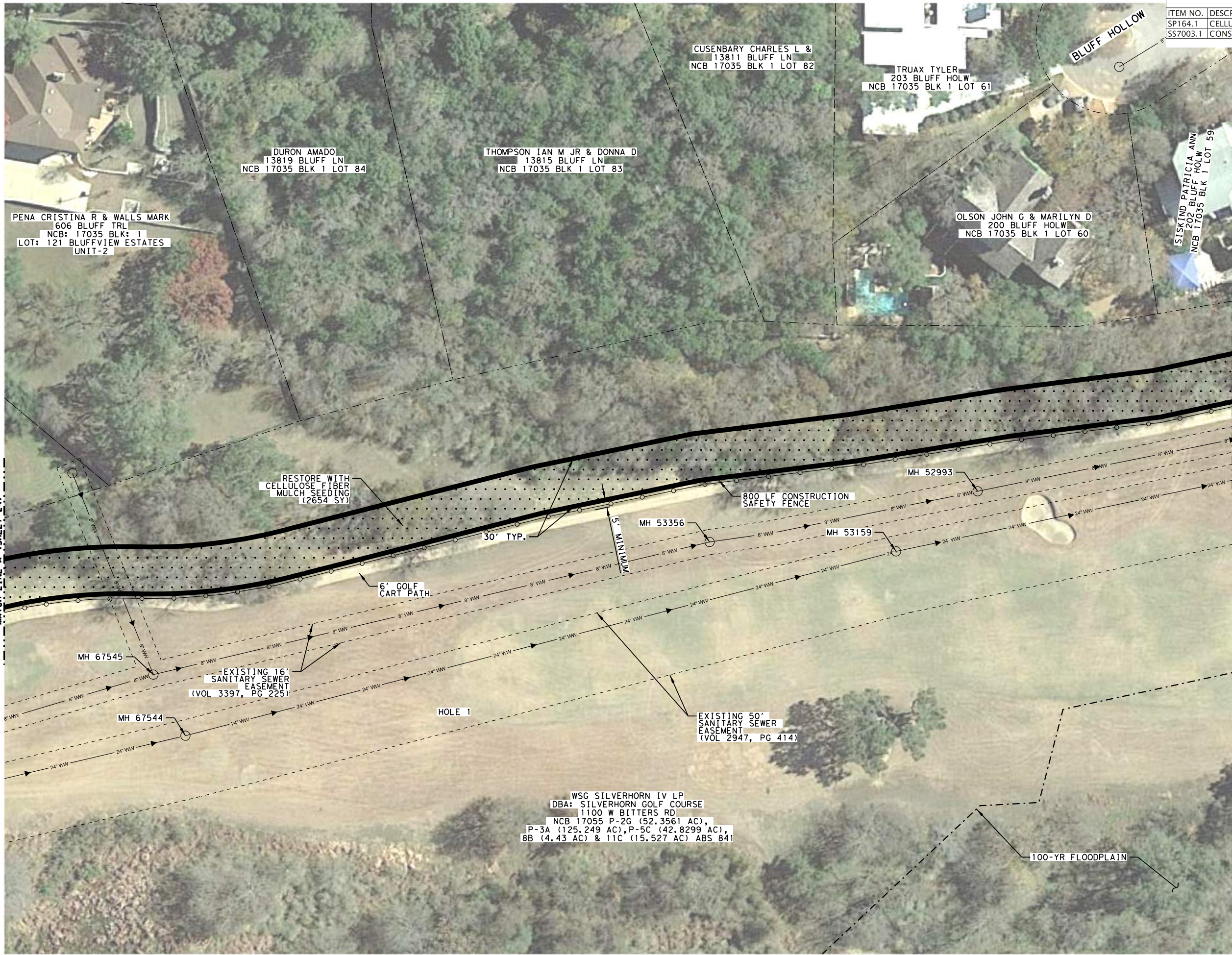


SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
GOLF COURSE ACCESS AND RESTORATION  
(1 OF 8)

DEVELOPER:			
CONT.		BUDGET PROJ.	
SUBMITTED			
APPROVED			
MAP No.			SHEET 24 OF 45
SECT. No.		JOB No. 18-4540	
DR. MW	CK.		



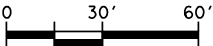
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ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
SP164.1	CELLULOSE FIBER MULCH SEEDING (PERM) (TXDOT SPEC)	SY	2653.9
SS7003.1	CONSTRUCTION SAFETY FENCING	LF	800

LEGEND

- HYDROMULCHING
- SODDING AND TOPSOIL
- DRILL SEEDING
- CONCRETE REPLACEMENT
- PROTECTIVE MATTING
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- WASTEWATER LINE TO BE REHABILITATED
- EXIST WASTEWATER LINE
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- 100-YEAR FLOODPLAIN LIMITS
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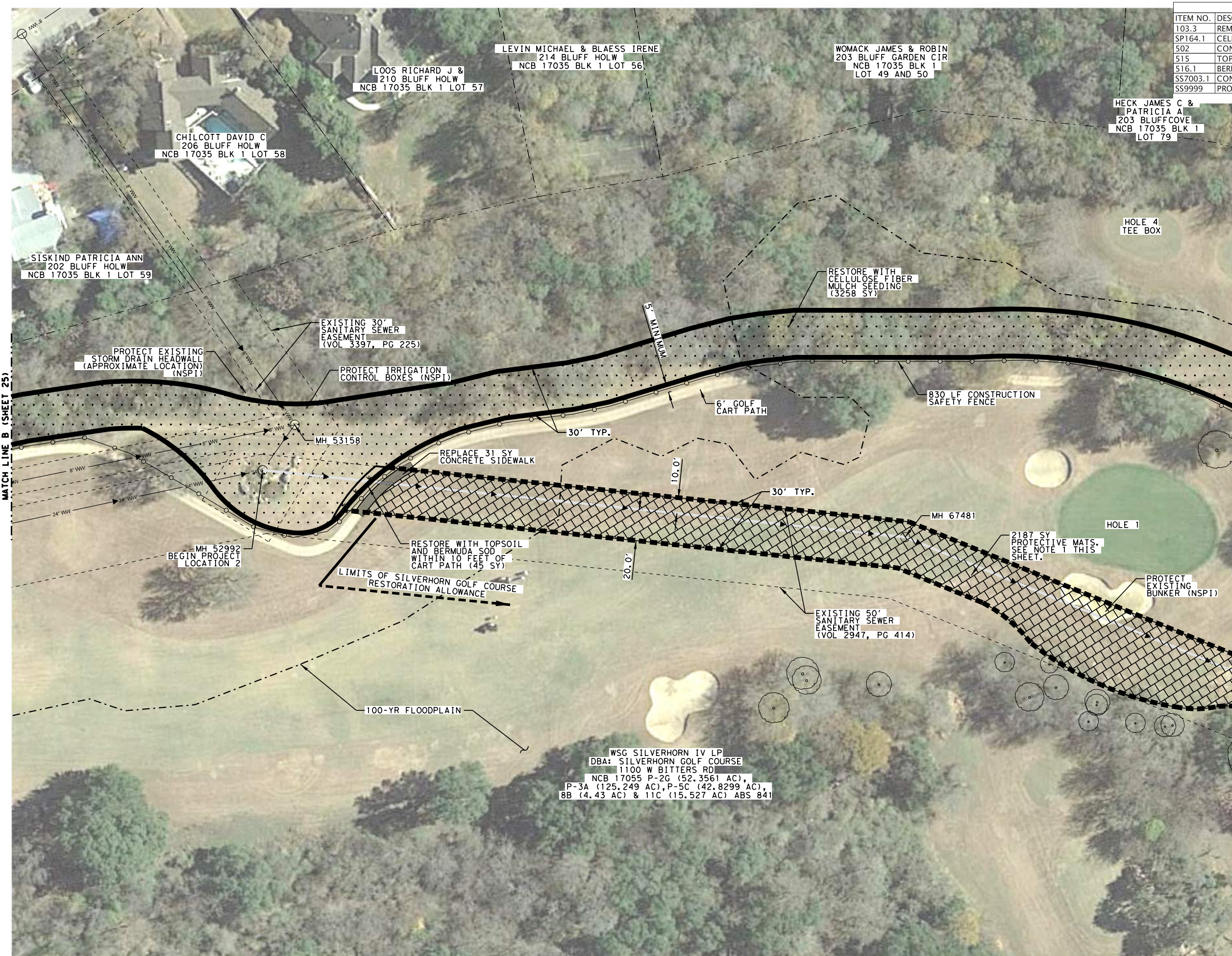
REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
  
GOLF COURSE ACCESS  
AND RESTORATION  
(2 OF 8)

DEVELOPER:			
CONT.		BUDGET PROJ.	
SUBMITTED _____			
APPROVED _____			
MAP No.			SHEET 25 OF 45
SECT. No.		JOB No. 18-4540	
DR. MW	CK.		



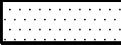

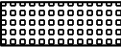

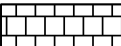










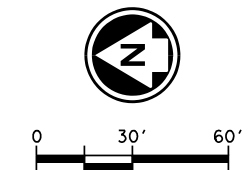
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
103.3	REMOVE SIDEWALKS AND DRIVEWAYS (COSA SPEC)	SF	278
SP164.1	CELLULOSE FIBER MULCH SEEDING (PERM) (TXDOT SPEC)	SY	3258
502	CONCRETE SIDEWALK (COSA SPEC)	SY	31
515	TOPSOIL (4" THICK)	SY	45
516.1	BERMUDA SODDING (COSA SPEC)	SY	45
SS7003.1	CONSTRUCTION SAFETY FENCING	LF	830
SS9999	PROTECTIVE MATS	SY	2187

NOTE:

1. PROTECTIVE MATS REQUIRED FOR ALL ACCESS ROUTES IN GOLF COURSE FAIRWAYS OR GREENS.

### LEGEND

	HYDROMULCHING
	SODDING AND TOPSOIL
	DRILL SEEDING
	CONCRETE REPLACEMENT
	PROTECTIVE MATTING
	PRIMARY CONSTRUCTION ACCESS
	SECONDARY CONSTRUCTION ACCESS
	WASTEWATER LINE TO BE REHABILITATED
	EXIST WASTEWATER LINE
	PROPERTY LINE
	100-YEAR FLOODPLAIN LIMITS
	TEMPORARY CHAIN LINK FENCE
	CONSTRUCTION SAFETY FENCE



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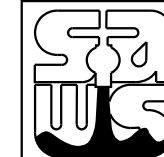
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## REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE

GOLF COURSE ACCESS  
AND RESTORATION  
(3 OF 8)

DEVELOPER:

CONT.	BUDGET PROJ.
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SUBMITTED \_\_\_\_\_

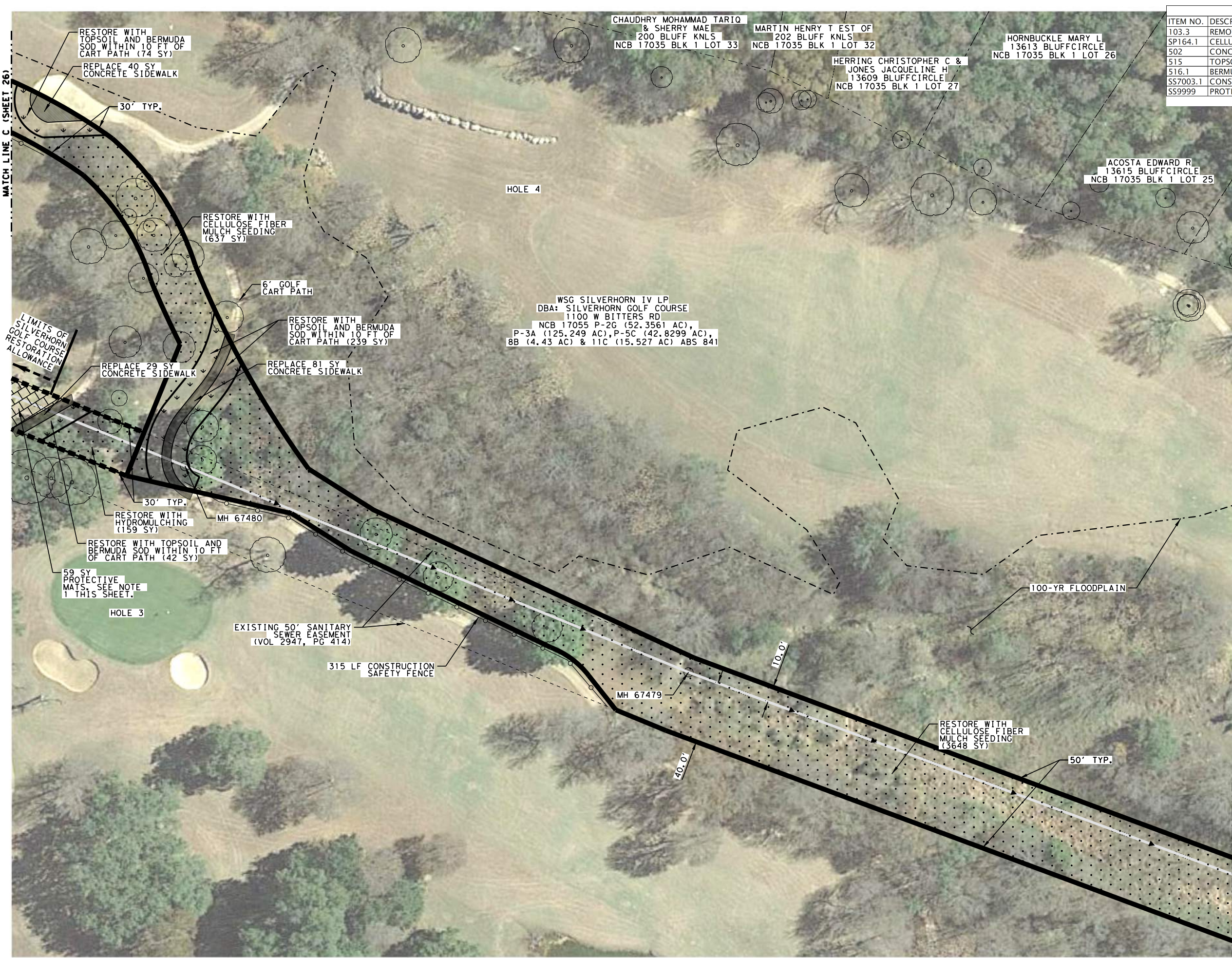
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MAP No.	SHEET
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SECT. No.	26
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DR.	MW	CK.	JOB No.	18-4540	OF 45
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ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
103.3	REMOVE SIDEWALKS AND DRIVEWAYS (COSA SPEC)	SF	1346
SP164.1	CELLULOSE FIBER MULCH SEEDING (PERM) (TXDOT SPEC)	SY	4444
502	CONCRETE SIDEWALK (COSA SPEC)	SY	150
515	TOPSOIL (4" THICK)	SY	355
516.1	BERMUDA SODDING (COSA SPEC)	SY	355
SS7003.1	CONSTRUCTION SAFETY FENCING	LF	315
SS9999	PROTECTIVE MATS	SY	59

NOTE:  
1. PROTECTIVE MATS REQUIRED FOR ALL ACCESS ROUTES IN GOLF COURSE FAIRWAYS OR GREENS.

LEGEND

- HYDROMULCHING
- SODDING AND TOPSOIL
- DRILL SEEDING
- CONCRETE REPLACEMENT
- PROTECTIVE MATTING
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- WASTEWATER LINE TO BE REHABILITATED
- EXIST WASTEWATER LINE
- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- TEMPORARY CHAIN LINK FENCE
- CONSTRUCTION SAFETY FENCE

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SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
GOLF COURSE ACCESS AND RESTORATION  
(4 OF 8)

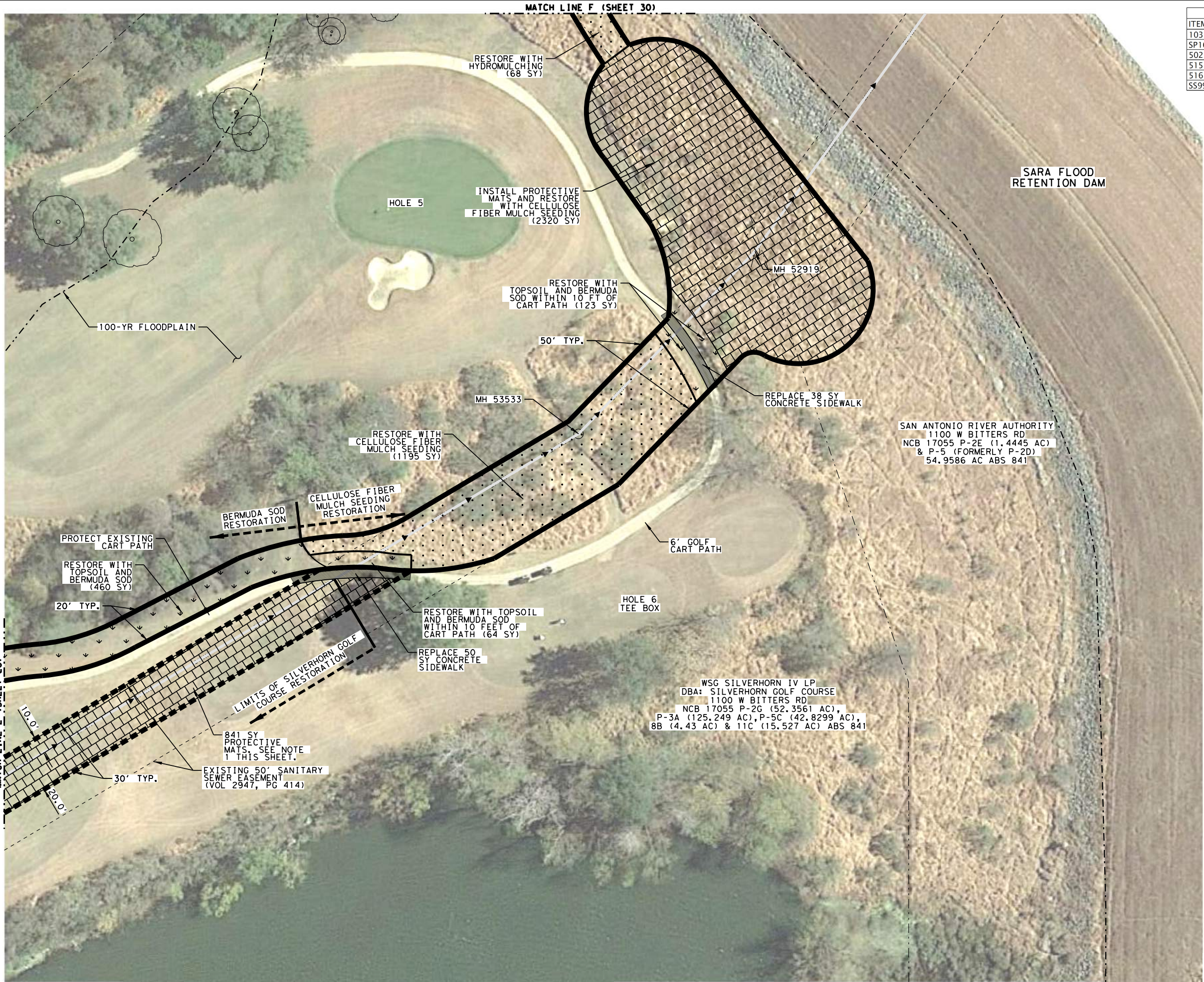
DEVELOPER: \_\_\_\_\_  
CONT. \_\_\_\_\_ BUDGET PROJ. \_\_\_\_\_  
SUBMITTED \_\_\_\_\_  
APPROVED \_\_\_\_\_  
MAP No. \_\_\_\_\_ SHEET 27  
SECT. No. \_\_\_\_\_ OF 45  
DR. MW CK. \_\_\_\_\_ JOB No. 18-4540







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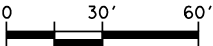
ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
103.3	REMOVE SIDEWALKS AND DRIVEWAYS (COSA SPEC)	SF	785
SP164.1	CELLULOSE FIBER MULCH SEEDING (PERM) (TXDOT SPEC)	SY	3583
502	CONCRETE SIDEWALK (COSA SPEC)	SY	88
515	TOPSOIL (4" THICK)	SY	647
516.1	BERMUDA SODDING (COSA SPEC)	SY	647
SS9999	PROTECTIVE MATS	SY	3161

NOTE:

1. PROTECTIVE MATS REQUIRED FOR ALL ACCESS ROUTES IN GOLF COURSE FAIRWAYS OR GREENS.

LEGEND

	HYDROMULCHING
	SODDING AND TOPSOIL
	DRILL SEEDING
	CONCRETE REPLACEMENT
	PROTECTIVE MATTING
	PRIMARY CONSTRUCTION ACCESS
	SECONDARY CONSTRUCTION ACCESS
	WASTEWATER LINE TO BE REHABILITATED
	EXIST WASTEWATER LINE
	PROPERTY LINE
	100-YEAR FLOODPLAIN LIMITS
	TEMPORARY CHAIN LINK FENCE
	CONSTRUCTION SAFETY FENCE



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REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
  
GOLF COURSE ACCESS  
AND RESTORATION  
(6 OF 8)

DEVELOPER:

CONT. BUDGET PROJ.

SUBMITTED

APPROVED

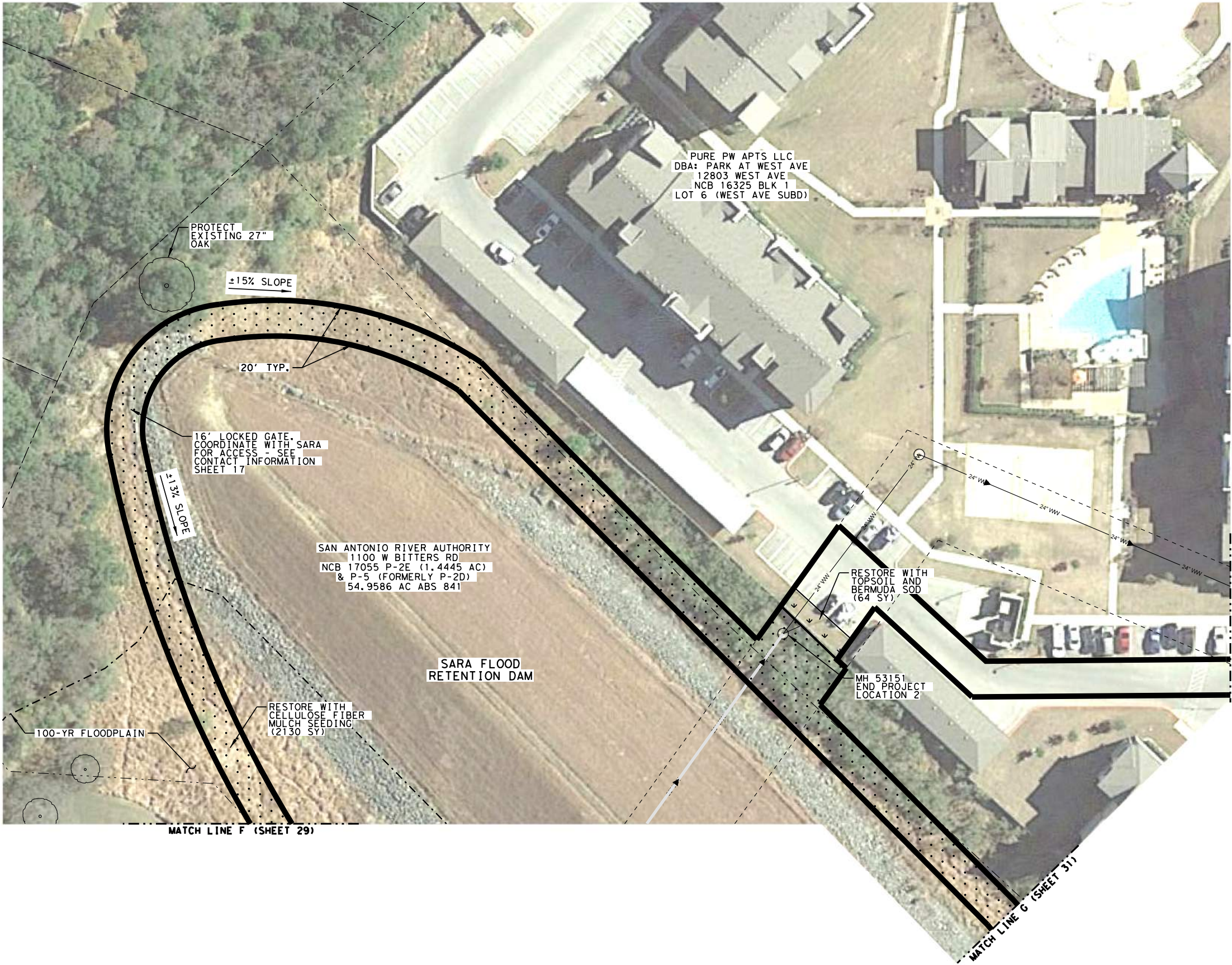
MAP No.

SECT. No.

DR. MW CK. JOB No. 18-4540

SHEET  
29  
OF 45

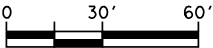




ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
SP164.1	CELLULOSE FIBER MULCH SEEDING (PERM) (TXDOT SPEC)	SY	2130
515	TOPSOIL (4" THICK)	SY	64
516.1	BERMUDA SODDING (COSA SPEC)	SY	64

LEGEND

- HYDROMULCHING
- SODDING AND TOPSOIL
- DRILL SEEDING
- CONCRETE REPLACEMENT
- PROTECTIVE MATTING
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- WASTEWATER LINE TO BE REHABILITATED
- X\"/>



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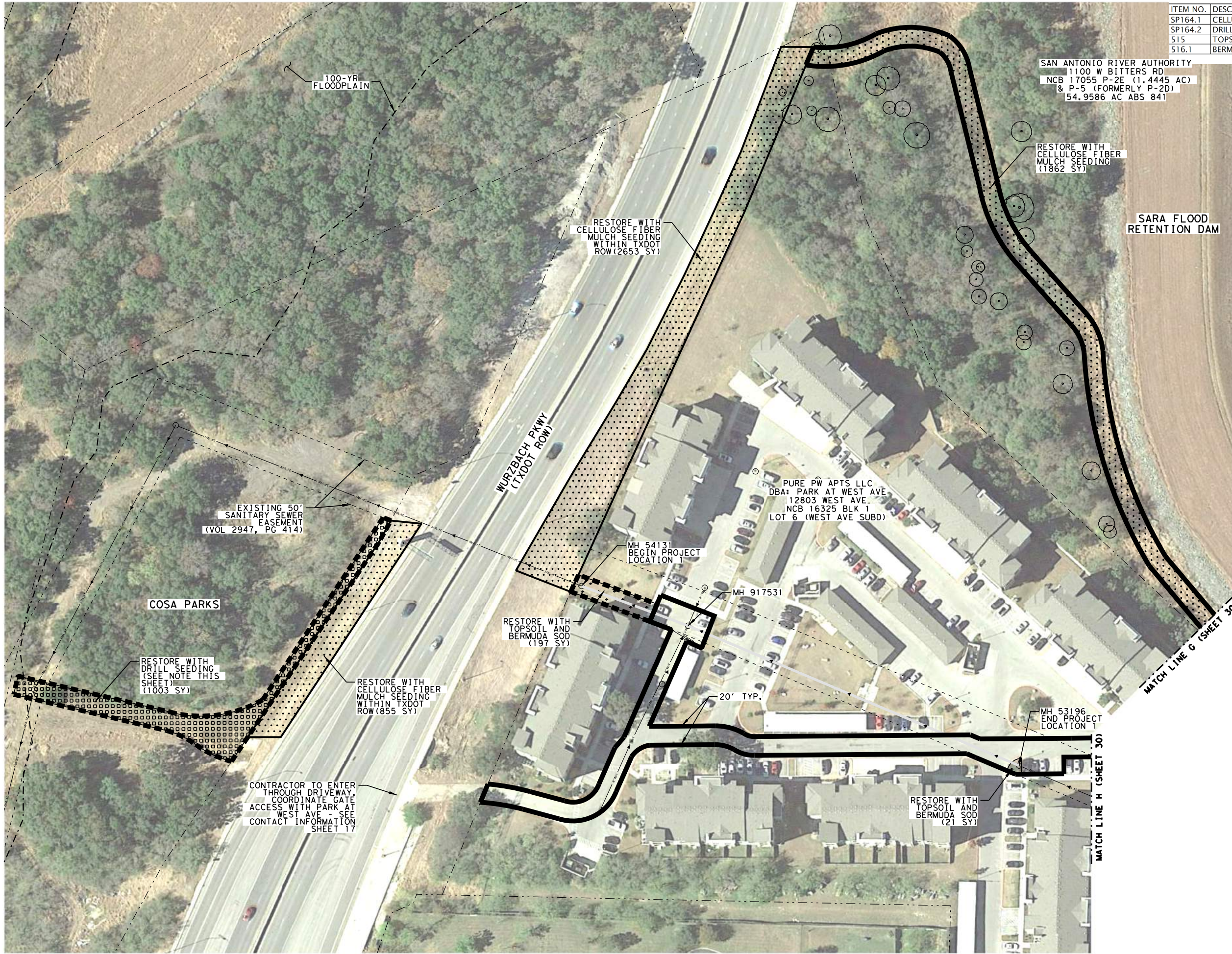
REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
  
GOLF COURSE ACCESS  
AND RESTORATION  
(7 OF 8)

DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED_____				
APPROVED _____				
MAP No.				SHEET 30
SECT. No.				
DR.	MW	CK.	JOB No. 18-4540	OF 45

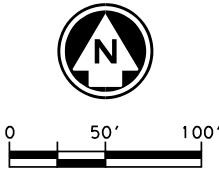




ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
SP164.1	CELLULOSE FIBER MULCH SEEDING (PERM) (TXDOT SPEC)	SY	5370
SP164.2	DRILL SEEDING (PERM) (TXDOT SPEC)	SY	1003
515	TOPSOIL (4" THICK)	SY	218
516.1	BERMUDA SODDING (COSA SPEC)	SY	218

NOTE:  
1. DRILL SEEDING RESTORATION IN COSA PARKS SHALL USE NATIVE SEED MIX. REFER TO SPECIAL PROVISIONS FOR DETAILS ON SEED MIX.

LEGEND	
	HYDROMULCHING
	SODDING AND TOPSOIL
	DRILL SEEDING
	CONCRETE REPLACEMENT
	PROTECTIVE MATTING
	PRIMARY CONSTRUCTION ACCESS
	SECONDARY CONSTRUCTION ACCESS
	WASTEWATER LINE TO BE REHABILITATED
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	PROPERTY LINE
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	TEMPORARY CHAIN LINK FENCE
	CONSTRUCTION SAFETY FENCE



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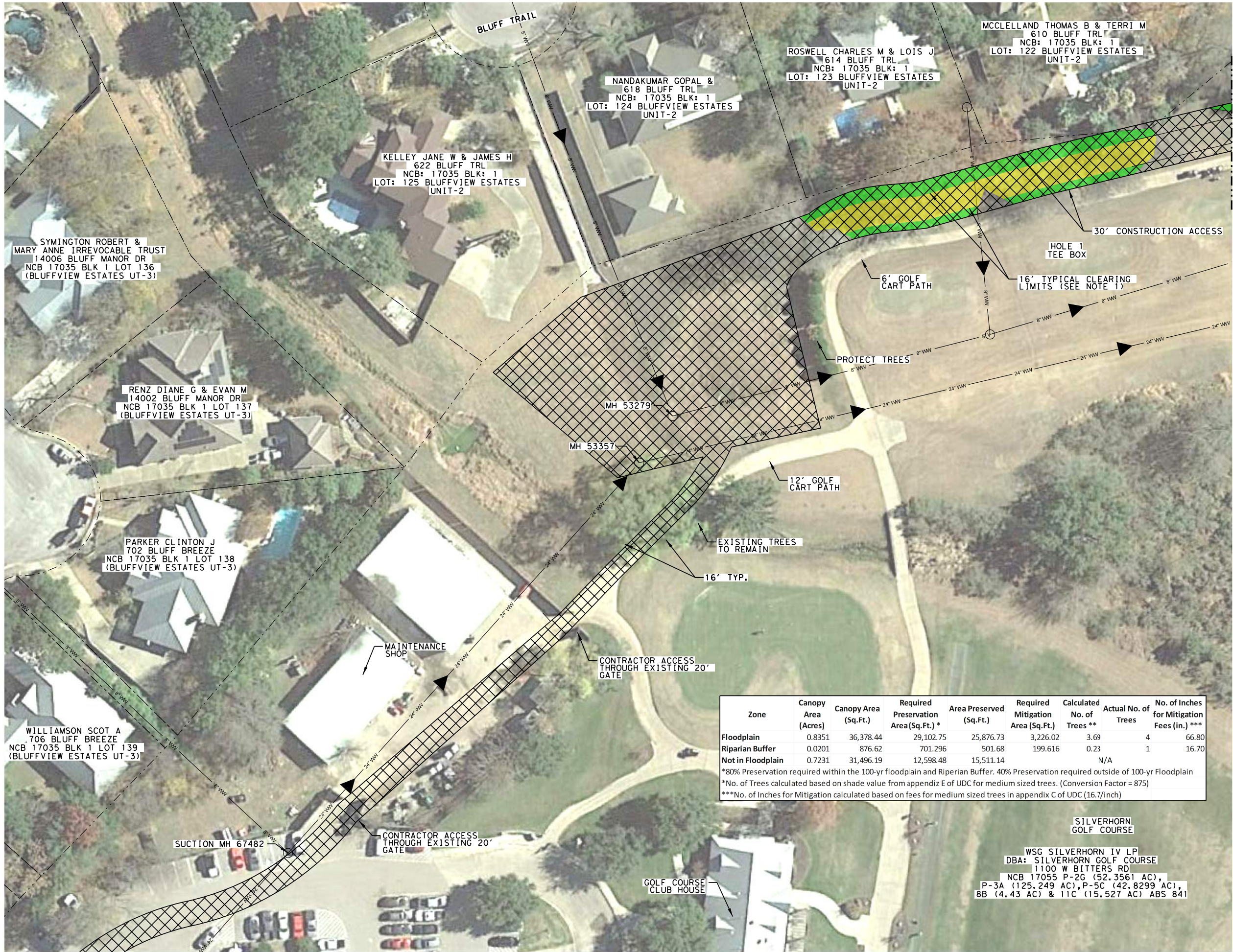
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No.	Revision	Drawn	Approved	Date
REVISIONS				
		SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE		
		CONTRACTOR ACCESS APARTMENT COMPLEX (8 OF 8)		
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 31
SECT. No.				
DR. MW	CK.	JOB No. 18-4540		OF 45



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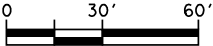
LEGEND

- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- 30 FT RIPARIAN BUFFER
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- TREE CANOPY TO BE REMOVED (IN FLOODPLAIN)
- TREE CANOPY TO REMAIN (IN FLOODPLAIN)
- TREE CANOPY TO BE REMOVED (IN 30 FT RIPARIAN BUFFER)
- TREE CANOPY TO REMAIN (IN 30 FT RIPARIAN BUFFER)
- TREE CANOPY TO BE REMOVED (NOT IN FLOODPLAIN)
- TREE CANOPY TO REMAIN (NOT IN FLOODPLAIN)

NOTE:  
1. REFER TO PROJECT SPECIFIC NOTES ON SHEET 3 AND DETAIL ON SHEET 23 FOR LIMITS OF CLEARING.

HERITAGE TREE TABLE

TREE ID #	SPECIES	DIA	SHEET
T1435	OAK	27"	35
T1437	OAK	31"	35
T11061	OAK	24"	39
T11064	OAK	27"	39



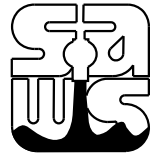
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Zone	Canopy Area (Acres)	Canopy Area (Sq.Ft.)	Required Preservation Area (Sq.Ft.) *	Area Preserved (Sq.Ft.)	Required Mitigation Area (Sq.Ft.)	Calculated No. of Trees **	Actual No. of Trees	No. of Inches for Mitigation Fees (in.) ***
Floodplain	0.8351	36,378.44	29,102.75	25,876.73	3,226.02	3.69	4	66.80
Riparian Buffer	0.0201	876.62	701.296	501.68	199.616	0.23	1	16.70
Not in Floodplain	0.7231	31,496.19	12,598.48	15,511.14		N/A		

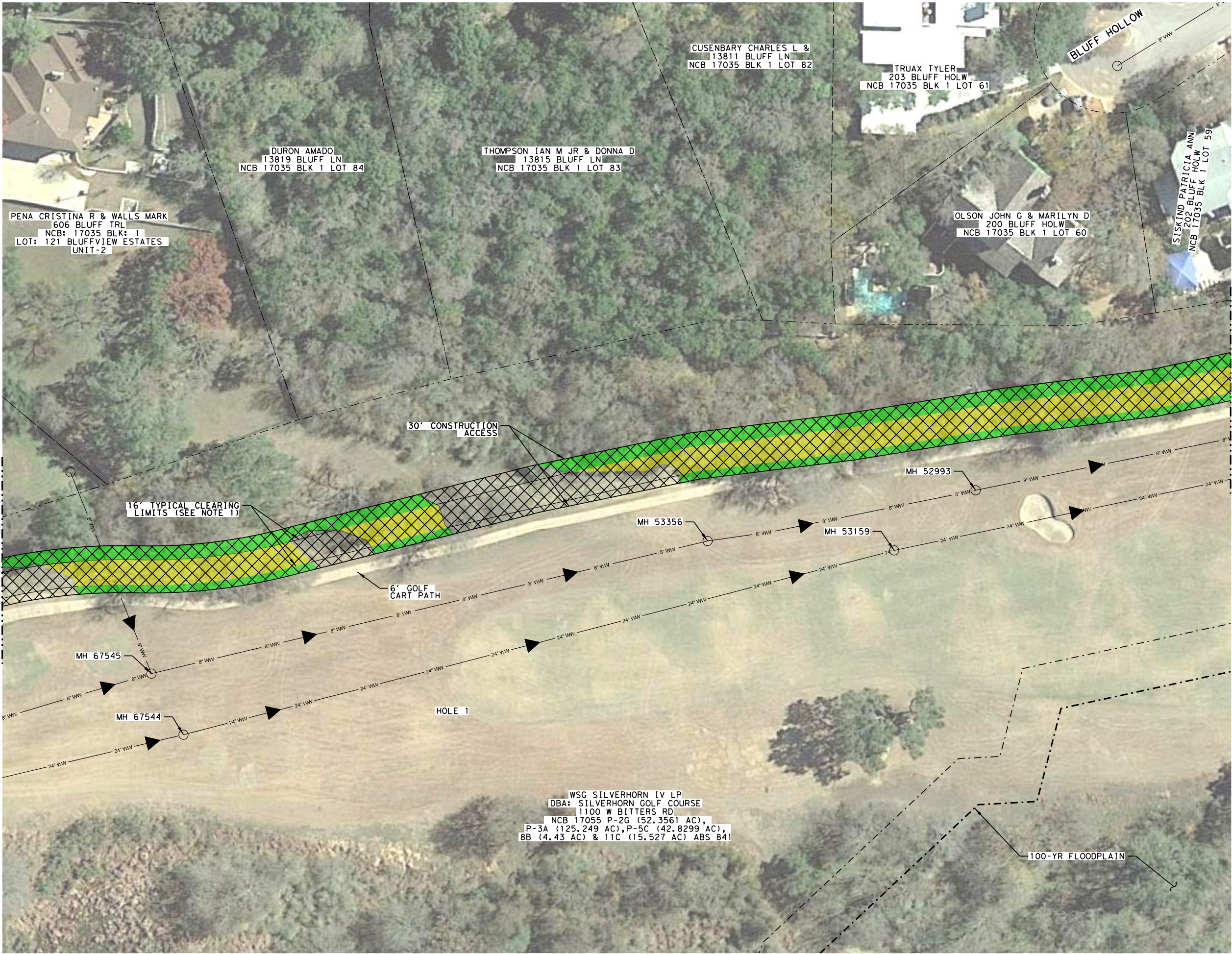
\*80% Preservation required within the 100-yr floodplain and Riparian Buffer. 40% Preservation required outside of 100-yr Floodplain  
\*\*No. of Trees calculated based on shade value from appendix E of UDC for medium sized trees. (Conversion Factor = 875)  
\*\*\*No. of Inches for Mitigation calculated based on fees for medium sized trees in appendix C of UDC (16.7/inch)



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
TREE CANOPY ASSESSMENT  
(1 OF 8)

DEVELOPER:	
CONT.	BUDGET PROJ.
SUBMITTED	
APPROVED	
MAP No.	SHEET 32 OF 45
SECT. No.	
DR. MW CK.	
JOB No. 18-4540	



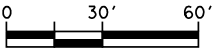


LEGEND

- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- 30 FT RIPARIAN BUFFER
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- TREE CANOPY TO BE REMOVED (IN FLOODPLAIN)
- TREE CANOPY TO REMAIN (IN FLOODPLAIN)
- TREE CANOPY TO BE REMOVED (IN 30 FT RIPARIAN BUFFER)
- TREE CANOPY TO REMAIN (IN 30 FT RIPARIAN BUFFER)
- TREE CANOPY TO BE REMOVED (NOT IN FLOODPLAIN)
- TREE CANOPY TO REMAIN (NOT IN FLOODPLAIN)

NOTE:

- REFER TO PROJECT SPECIFIC NOTES ON SHEET 3 AND DETAIL ON SHEET 23 FOR LIMITS OF CLEARING.



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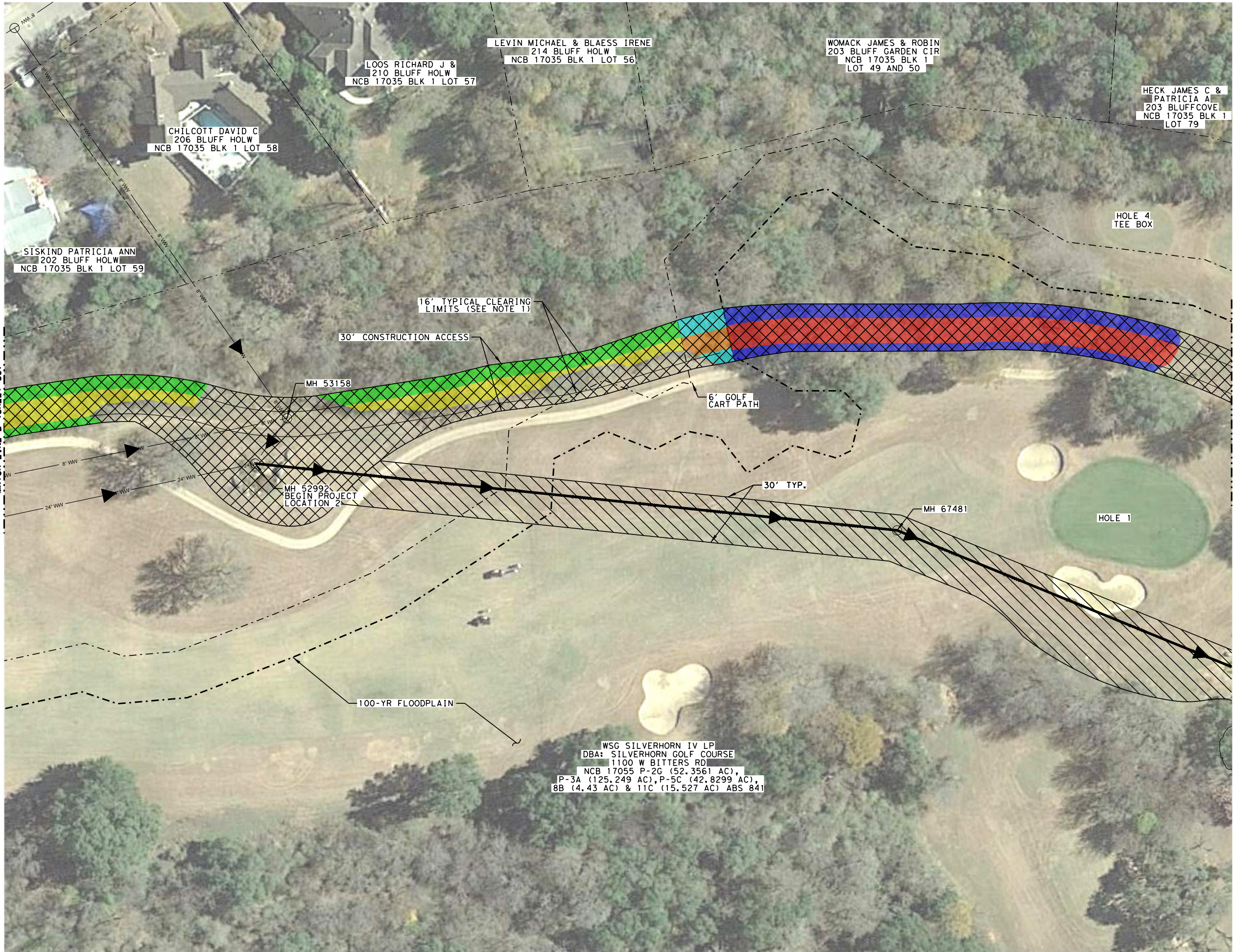


SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
TREE CANOPY ASSESSMENT  
(2 OF 8)

DEVELOPER:			
CONT.		BUDGET PROJ.	
SUBMITTED _____			
APPROVED _____			
MAP No.			SHEET 33 OF 45
SECT. No.		JOB No. 18-4540	
DR. MW	CK.		



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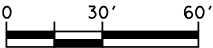


LEGEND

- PROPERTY LINE
- 100-YEAR FLOODPLAIN LIMITS
- 30 FT RIPARIAN BUFFER
- PRIMARY CONSTRUCTION ACCESS
- SECONDARY CONSTRUCTION ACCESS
- TREE CANOPY TO BE REMOVED (IN FLOODPLAIN)
- TREE CANOPY TO REMAIN (IN FLOODPLAIN)
- TREE CANOPY TO BE REMOVED (IN 30 FT RIPARIAN BUFFER)
- TREE CANOPY TO REMAIN (IN 30 FT RIPARIAN BUFFER)
- TREE CANOPY TO BE REMOVED (NOT IN FLOODPLAIN)
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NOTE:

- REFER TO PROJECT SPECIFIC NOTES ON SHEET 3 AND DETAIL ON SHEET 23 FOR LIMITS OF CLEARING.



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P 210.491.2391 F 512.338.1784  
TBP# Firm Number 6535  
www.kfriesse.com


No.	Revision	Drawn	Approved	Date
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REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
TREE CANOPY ASSESSMENT  
(3 OF 8)

DEVELOPER:			
CONT.		BUDGET PROJ.	
SUBMITTED_____			
APPROVED _____			
MAP No.			SHEET 34 OF 45
SECT. No.		JOB No. 18-4540	
DR. MW	CK.		



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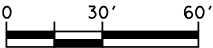


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REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
TREE CANOPY ASSESSMENT  
(4 OF 8)

DEVELOPER:

CONT. BUDGET PROJ.

SUBMITTED

APPROVED

MAP No.

SECT. No.

DR. MW CK. JOB No. 18-4540

SHEET  
35  
OF 45



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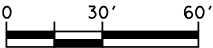


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No.	Revision	Drawn	Approved	Date
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REVISIONS

	SILVERHORN GOLF COURSE			
	24-INCH REHAB PACKAGE			
	TREE CANOPY ASSESSMENT			
	(5 OF 8)			

DEVELOPER:

CONT. BUDGET PROJ.

SUBMITTED

APPROVED

MAP No.			SHEET 36 OF 45
SECT. No.		JOB No. 18-4540	
DR. MW	CK.		



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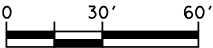


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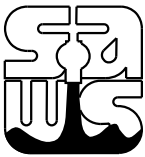
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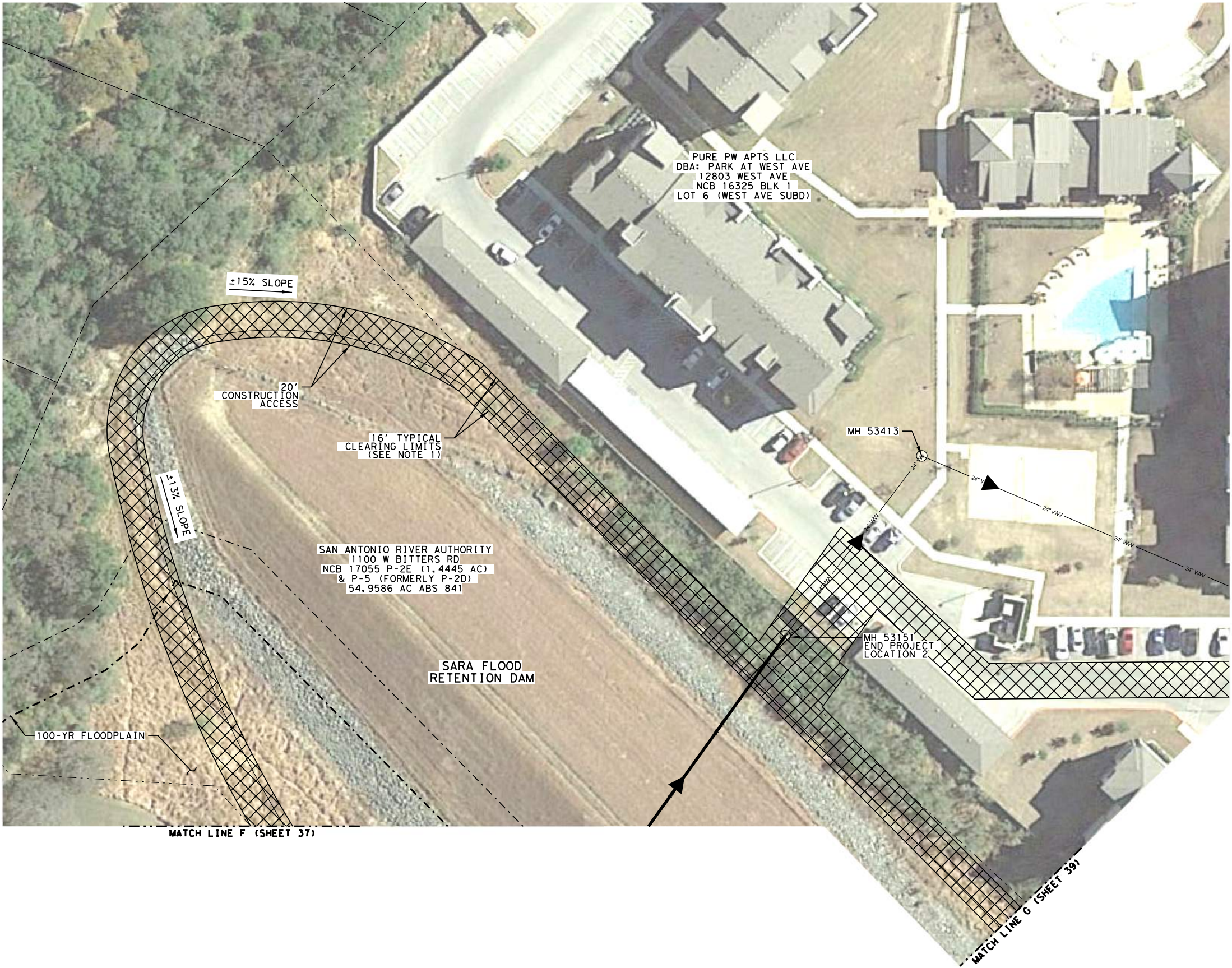
REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
TREE CANOPY ASSESSMENT  
(6 OF 8)

DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED_____				
APPROVED _____				
MAP No.				SHEET 37 OF 45
SECT. No.		JOB No. 18-4540		
DR. MW	CK.			



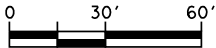


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REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
TREE CANOPY ASSESSMENT  
(7 OF 8)

DEVELOPER:			
CONT.		BUDGET PROJ.	
SUBMITTED _____			
APPROVED _____			
MAP No.			SHEET 38 OF 45
SECT. No.			
DR. MW	CK.	JOB No. 18-4540	



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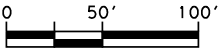


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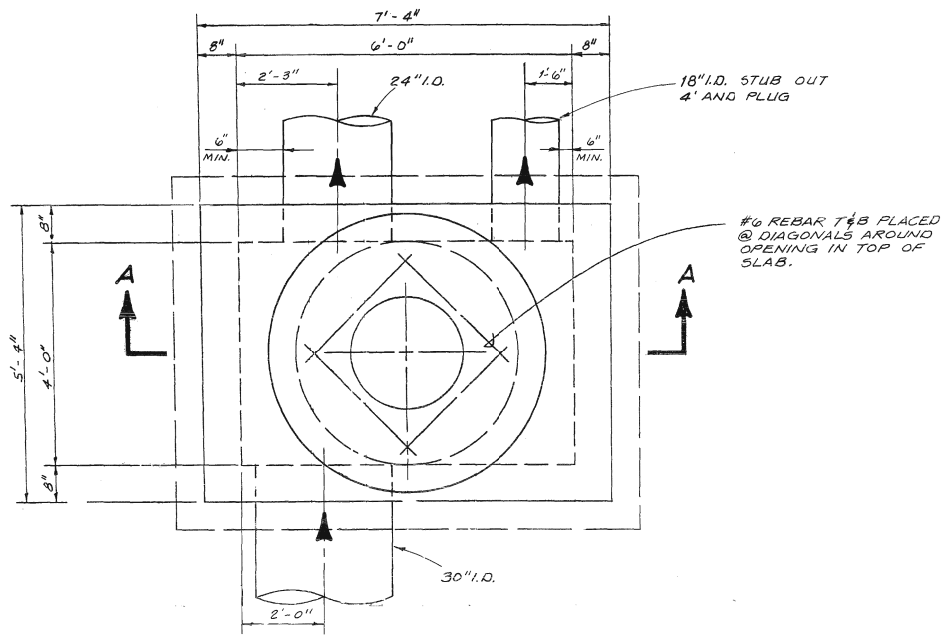
REVISIONS



SILVERHORN GOLF COURSE  
24-INCH REHAB PACKAGE  
TREE CANOPY ASSESSMENT  
(8 OF 8)

DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED_____				
APPROVED _____				
MAP No.				SHEET 39
SECT. No.				
DR. MW		CK.	JOB No. 18-4540	OF 45

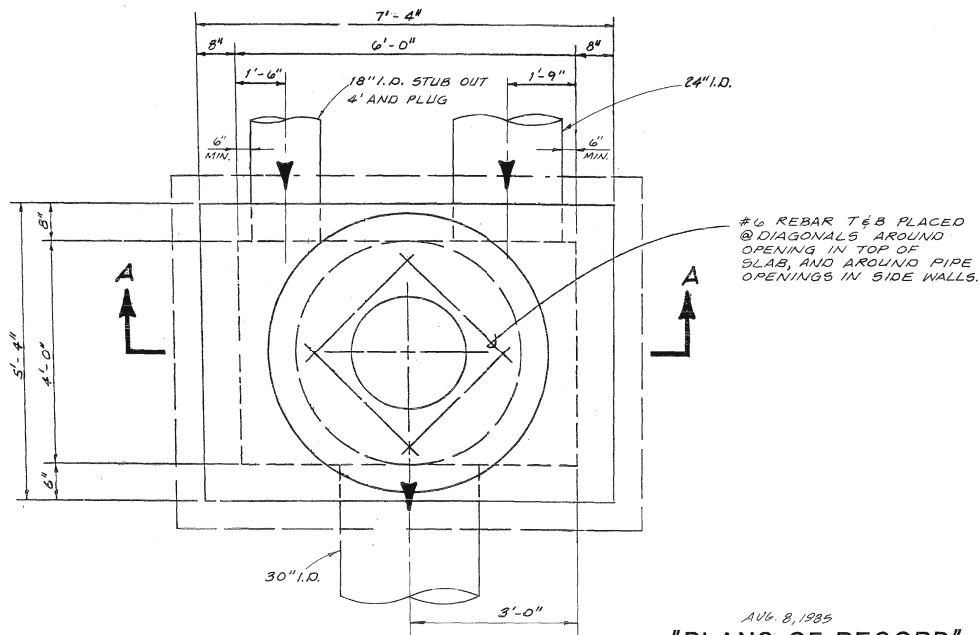




MANHOLE "E-7A" PLAN

N.T.S.

MH 53151



MANHOLE "E-7B" PLAN

N.T.S.

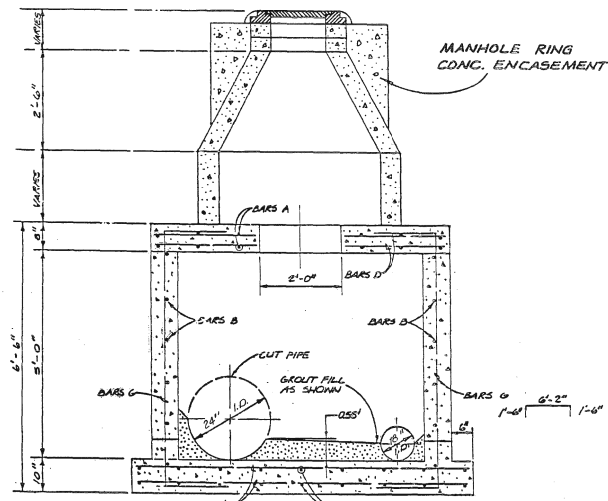
MH 52919

PLANS OF RECORD

REINFORCING STEEL		
BAR	SIZE	SPACING
A	#4	12" O.C.
B	#5	12" O.C.
C	#6	12" O.C.
D	#4	12" O.C.
E	#5	12" O.C.
F	#6	12" O.C.
G	#5	12" O.C.

NOTES:

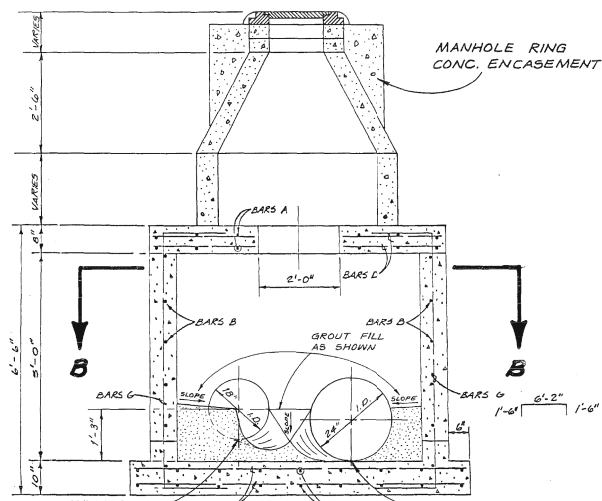
1. MINIMUM COMPRESSIVE STRENGTH OF CONCRETE IS 3000 P.S.I. @ 28 DAYS.
2. MINIMUM YIELD STRENGTH OF REINFORCING STEEL IS 50 K.S.I.
3. BARS SHALL BE PLACED A MINIMUM OF 2" INSIDE EXTREME FACES OF CONCRETE.
4. WHERE LAPPING OF BARS IS REQUIRED, A MINIMUM OF 40 DIAMETERS FOR LAP SHALL BE USED.



SECTION A-A M.H. "E-7A"

N.T.S.

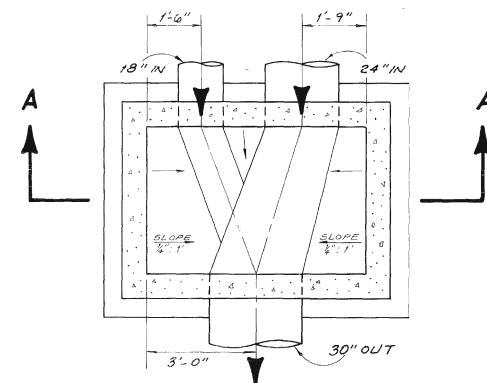
(PAY ITEM No. 405)



SECTION A-A M.H. "E-7B"

N.T.S.

(PAY ITEM No. 405)



SECTION B-B M.H. "E-7B"

N.T.S.

REVISIONS  
Change Order

PAPE-DAWSON ENGINEERS  
CIVIL & ENVIRONMENTAL  
SAN ANTONIO TEXAS 78217  
5210 BROADWAY  
512-824-2434

PANTHER SPRINGS CREEK  
ONSITE OVERSIZE SEWER  
STAGE III  
MANHOLE STRUCTURE DETAILS

JOB NO. 1965-38  
DATE AUGUST, 84  
DRAWN QWB, ETM  
SHEET 11 OF 12

NOT FOR CONSTRUCTION  
FOR INFORMATION ONLY

NOT TO SCALE

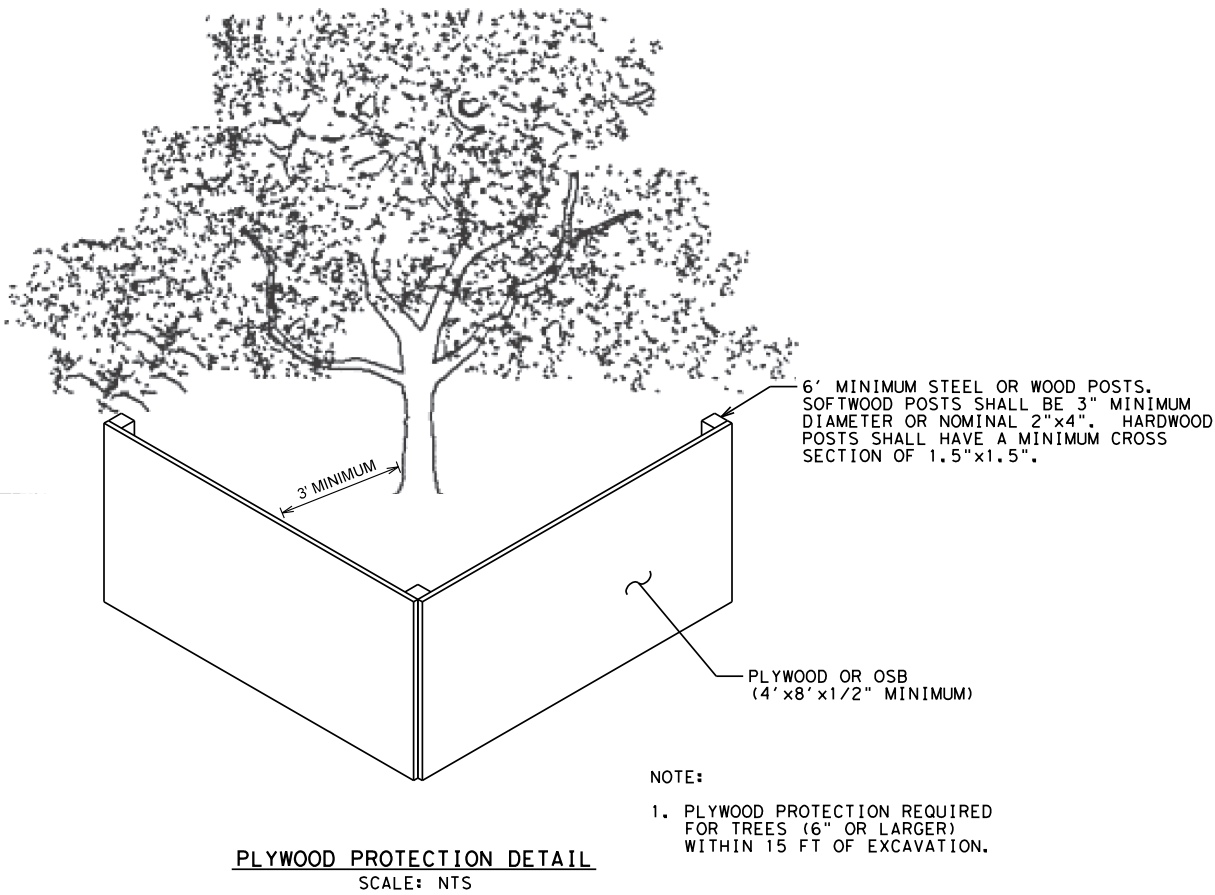
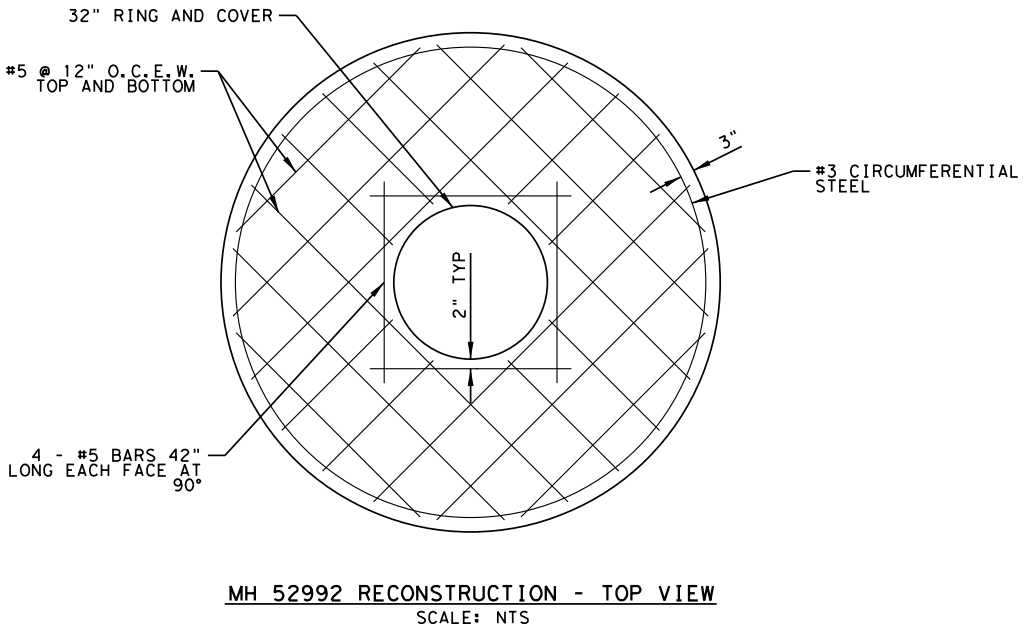
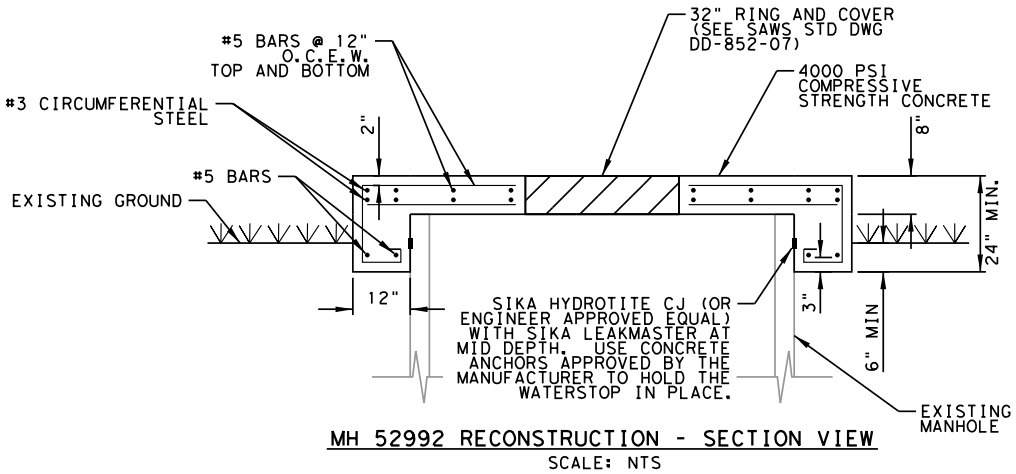
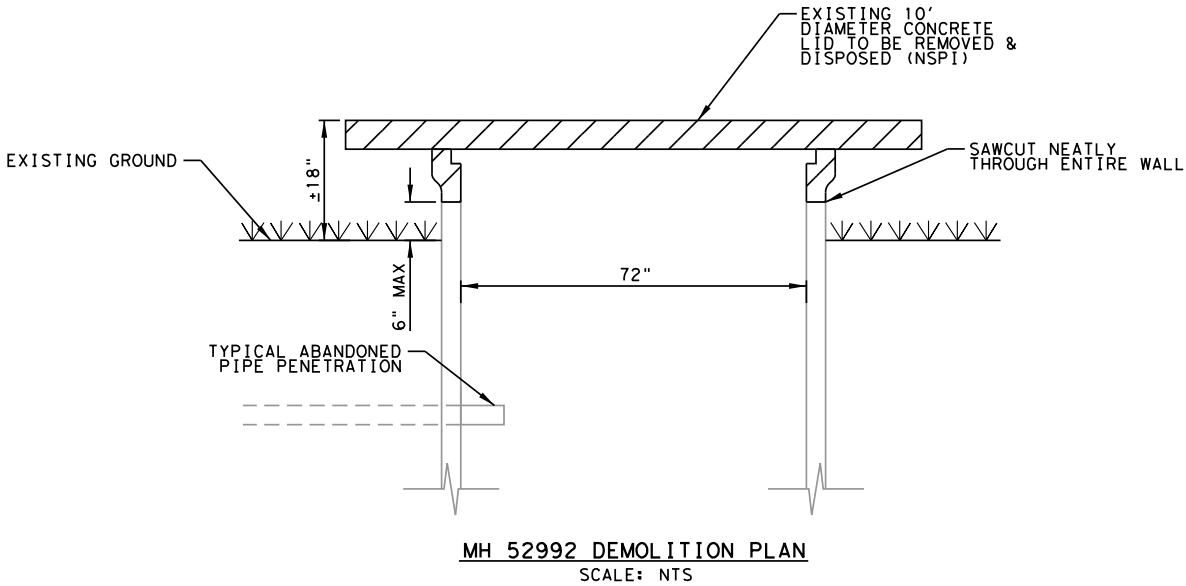
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No.	Revision	Drawn	Approved	Date

REVISIONS	
	SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE
	AS-BUILT MH 53151 AND MH 52919

DEVELOPER:	
CONT.	BUDGET PROJ.
SUBMITTED	
APPROVED	
MAP No.	SHEET 40
SECT. No.	
DR.	CK.
JOB No. 18-4540	
OF 45	





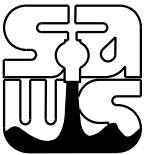
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96583  
7/17/2019

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No.	Revision	Drawn	Approved	Date
REVISIONS				
		SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE  DETAILS		
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 41 OF 45
SECT. No.		JOB No. 18-4540		
DR.	CK.			



SITE DESCRIPTION

PROJECT NAME AND LOCATION: 2019 SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE (SAWS JOB NO.18-4540)

THIS PROJECT CONSISTS OF 2 DIFFERENT PROJECT LOCATIONS LOCATED ON AND NEAR THE SILVERHORN GOLF COURSE IN THE CITY OF SAN ANTONIO.

CONTACT AND PHONE NO.: (CONTRACTOR)

PROJECT DESCRIPTION: THIS PROJECT IS A LARGE DIAMETER SANITARY SEWER REHABILITATION PROJECT WITH PIPE SIZES RANGING FROM 24" TO 30" IN DIAMETER, THERE IS A TOTAL OF 3,741 LF OF SEWER BEING REHABILITATED USING CURED-IN-PLACE PIPE (CIPP).

MAJOR SOIL DISTURBING ACTIVITIES: SOIL DISTURBANCE ACTIVITIES WILL INCLUDE PREPARING EASEMENT AREA AND RIGHT-OF-WAYS, CLEARING AND GRUBBING, TRENCHING, POINT REPAIR AREAS, EROSION AND SEDIMENT CONTROLS, AND TOPSOIL WORK FOR FINAL SEEDING AND SODDING.

TOTAL PROJECT AREA (ACRES): APPROX 6.11 ACRE

TOTAL AREA TO BE DISTURBED: APPROX. 0.66 ACRE

WEIGHTED RUNOFF COEFFICIENT: (AFTER CONSTRUCTION) NOT APPLICABLE

EXISTING CONDITION OF SOIL,VEGETATIVE COVER AND % OF VEGETATIVE COVER: VARIES BY PROJECT LOCATION

DESCRIPTION OF WATER DISCHARGED NOT ASSOCIATED WITH CONSTRUCTION: DISCHARGES FROM FIRE FIGHTING ACTIVITIES OR FIRE HYDRANT FLUSHING, WATER TO CONTROL DUST, UNCONTAMINATED GROUNDWATER OR ACCUMULATED STORMWATER

NAME OF RECEIVING WATERS: VARIES BY PROJECT LOCATION

IDENTIFY STORMWATER DISCHARGE POINTS: VARIES BY PROJECT LOCATION

A DESCRIPTION AND TIME FRAME FOR INSTALLATION OF STABILIZATION PRACTICES IN CONJUNCTION WITH CONSTRUCTION: SITES SHALL BE STABILIZED UPON COMPLETION OF SEWER CONSTRUCTION ACTIVITIES

SOIL STABILIZATION PRACTICES:

- HYDROMULCHING
- TEMPORARY SEEDING
- PERMANENT PLANTING, SODDING OR SEEDING
- MULCHING
- SOIL RETENTION BLANKET
- BUFFER ZONES
- PRESERVATION OF NATURAL RESOURCES

OTHER:

DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITY HAS CEASED TEMPORARILY OR PERMANENTLY, SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITIES ARE SCHEDULED TO RESUME AND DONE WITHIN 21 DAYS.

STRUCTURAL PRACTICES:

- SILT FENCES
- HAY BALES
- GRAVEL FILTRATION BAGS
- ROCK BERMS
- DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- DIVERSION, DIKE AND SWALE COMBINATIONS
- PAVED FLUMES
- ROCK BEDDING AT CONSTRUCTION EXIT (STABILIZED ENTRANCE)
- TIMBER MATTING AT CONSTRUCTION EXIT (STABILIZED ENTRANCE)
- CHANNEL LINERS
- SEDIMENT TRAPS
- SEDIMENT BASINS
- STORM INLET SEDIMENT TRAP
- STONE OUTLET SEDIMENT STRUCTURES
- CURBS AND GUTTERS
- STORM SEWERS
- VELOCITY CONTROL STRUCTURES
- GEOTEXTILES

OTHER: NOT APPLICABLE

NARRATIVE – SEQUENCE OF CONSTRUCTION (STORMWATER MANAGEMENT) ACTIVITIES:

THE ORDER OF ACTIVITIES WILL BE AS FOLLOWS: INSTALL SEDIMENT CONTROL FENCES, ROCK BERMS, FILTRATION

BAGS AND CONSTRUCTION EXITS. PREPARE EASEMENT AREA BY CLEARING AND GRUBBING OF

VEGETATION AND TREES AS PER TREE PERMIT REQUIREMENTS. REMOVE /INSTALL /ADJUST TEMPORARY

EROSION, SEDIMENT, AND STORM WATER POLLUTION CONTROL MEASURES. SITE CLEANUP AND

REVEGETATION OF DISTURBED AREAS. REMOVAL OF TEMPORARY CONTROL DEVICES.

A DESCRIPTION OF MAINTENANCE PROCEDURES FOR CONTROL MEASURES USED: DISTURBED AREAS THAT ARE EXPOSED TO

PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF POLLUTANTS ENTERING THE CREEK SYSTEMS.

LOCATIONS WHERE VEHICLE AND EQUIPMENT ENTER, EXIT OR TRAVEL THROUGH THE SITE SHALL BE

INSPECTED FOR EVIDENCE OF OFFSITE SEDIMENT TRACKING. CONTRACTOR SHALL PROVIDE CONTROL

MEASURES TO REPAIR/REPLACE APPURTENANCES AS NEEDED.

STORMWATER MANAGEMENT: CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE TO EXISTING

STORMWATER SYSTEMS, STORMWATER DISCHARGE SHALL BE CONVEYED THROUGH EXISTING STORM DRAIN

SYSTEMS, CULVERTS, CHANNELS, NATURAL STREAMS, DITCHES, ETC. ALL DISTURBED AREAS SHALL BE

RESTORED TO PRE-CONSTRUCTION CONDITIONS.

A DESCRIPTION OF PERMANENT STORM WATER MANAGEMENT CONTROLS: NOT APPLICABLE

EROSION AND SEDIMENTATION CONTROLS

OTHER EROSION AND SEDIMENTATION CONTROLS

MAINTENANCE:

ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT WILL BE DONE AT THE EARLIEST DATE POSSIBLE, BUT NO LATER THAN 7 CALENDAR DAYS AFTER THE SURROUNDING EXPOSED GROUND HAS DRIED SUFFICIENTLY TO PREVENT FURTHER DAMAGE FROM HEAVY EQUIPMENT. THE AREAS ADJACENT TO CREEKS AND DRAINAGEWAYS SHALL HAVE PRIORITY, FOLLOWED BY DEVICES PROTECTING STORM SEWER INLETS.

INSPECTION:

AN INSPECTION WILL BE PERFORMED BY THE CONTRACTOR EVERY 14 DAYS AS WELL AS AFTER EVERY 1/2" OR MORE OF RAIN (RECORDED ON A NON-FREEZING RAIN GAUGE TO BE LOCATED AT THE PROJECT SITE). AN INSPECTION AND MAINTENANCE REPORT WILL BE MADE PER INSPECTION. BASED ON THE INSPECTION RESULTS, THE CONTROLS SHALL BE CORRECTED BEFORE THE NEXT SCHEDULED INSPECTION.

WASTE MATERIALS:

ALL WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER. THE DUMPSTER WILL MEET ALL STATE AND LOCAL CITY SOLID WASTE MANAGEMENT REGULATIONS. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION AND THE TRASH WILL BE HAULED TO A LOCAL DUMP. NO CONSTRUCTION MATERIALS WILL BE BURIED ON SITE.

HAZARDOUS WASTE (INCLUDING SPILL REPORTING):

AT A MINIMUM ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED TO BE HAZARDOUS: PAINTS, ACIDS FOR CLEANING, MASONRY SURFACES, GASOLINE, MOTOR OIL, CLEANING SOLVENTS, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION OR CONCRETE CURING COMPOUNDS AND ADDITIVES. IN THE EVENT OF A SPILL WHICH MAY BE HAZARDOUS AND MEETS REPORTING REQUIREMENTS, THE NATIONAL RESPONSE CENTER SHOULD BE CONTACTED AT 800-424-8802, AND ANY REQUIRED CHANGES MADE TO THE SWPPP. IN THE EVENT OF A LIFE THREATENING SPILL THE SAN ANTONIO FIRE DEPARTMENT SHOULD BE NOTIFIED AS WELL AS THE APPROPRIATE CITY INSPECTORS.

SANITARY WASTE ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS AS NECESSARY OR AS REQUIRED BY

LOCAL REGULATION BY A LICENSED SANITARY SEWER WASTE MANAGEMENT COMPANY. PORTABLE UNITS SHALL NOT BE

LOCATED WITHIN THE FLOODPLAIN.

OFFSITE EXCAVATION SOURCE LOCATION NOT APPLICABLE

OFFSITE FILL SOURCE LOCATION NOT APPLICABLE

OFFSITE VEHICLE TRACKING NOT APPLICABLE

- HAUL ROADS DAMPENED FOR DUST CONTROL.
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD TO BE REMOVED DAILY
- STABILIZED CONSTRUCTION ENTRANCE.

OTHER:

CERTIFICATION THAT SITE DISTURBANCE AND / OR DISCHARGES WILL NOT EFFECT LISTED ENDANGERED SPECIES AND THEIR HABITAT. WHAT METHOD IS USED TO SATISFY THE ENDANGERED SPECIES REQUIREMENTS? NOT APPLICABLE

REMARKS:

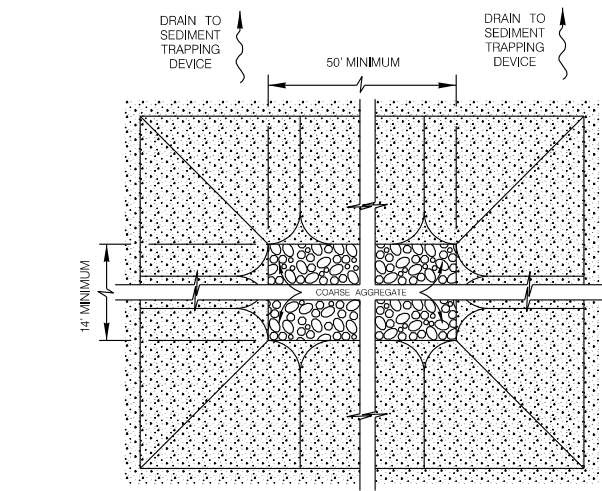
DISPOSAL AREAS, STOCKPILES AND HAUL ROADS SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT ENTERS RECEIVING WATERS. DISPOSAL AREAS SHALL NOT BE LOCATED IN ANY WETLAND, BODY OF WATER, STREAMBED OR FLOODPLAIN. CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED BY THE CONTRACTOR IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS. ALL WATERWAYS SHALL BE CLEARED AS SOON AS POSSIBLE OF TEMPORARY EMBANKMENT, TEMPORARY BRIDGES, MATTING, FALSEWORK, PILING DEBRIS OR OTHER OBSTRUCTION PLACED DURING CONSTRUCTION OPERATIONS THAT ARE NOT PART OF THE FINISHED WORK.

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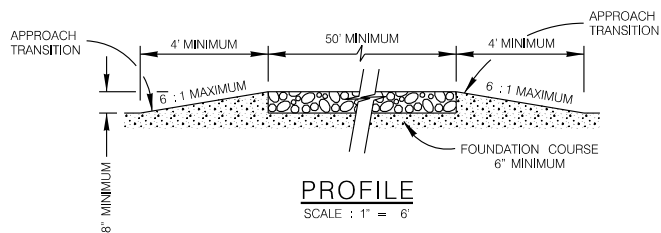
CITY OF SAN ANTONIO  
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

STORM WATER POLLUTION PREVENTION PLAN (SWP3) NARRATIVE





**PLAN**  
SCALE : 1" = 6'

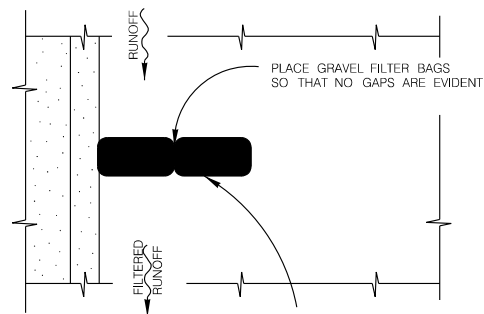


**PROFILE**  
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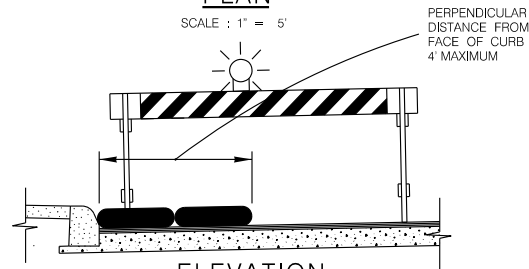
**GENERAL NOTES**

1. THE LENGTH OF THE TYPE 1 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE COARSE AGGREGATE SHOULD BE OPEN GRADED WITH A SIZE OF 4" TO 8".
3. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6:1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
4. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT SHALL BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
6. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

**CONSTRUCTION EXIT - TYPE 1**



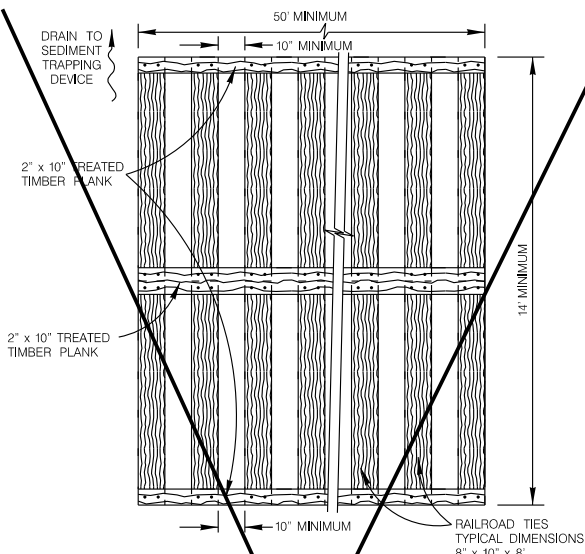
**PLAN**  
SCALE : 1" = 5'



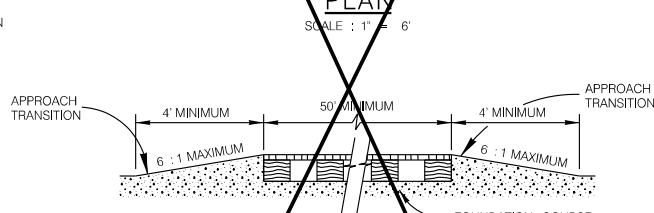
**ELEVATION**  
SCALE : 1" = 5'

NOTE: STRADDLE GRAVEL FILTER BAGS WITH TYPE 1 BARRICADES MOUNTED WITH TYPE "A" FLASHING WARNING LIGHT. SEE BARRICADE CONSTRUCTION SIGN DETAILS. PLACE FLASHING LIGHTS AWAY FROM GUTTER, FLUSH WITH OUTSIDE EDGE OF BAG CONFIGURATION.

**GRAVEL FILTER BAGS**



**PLAN**  
SCALE : 1" = 6'

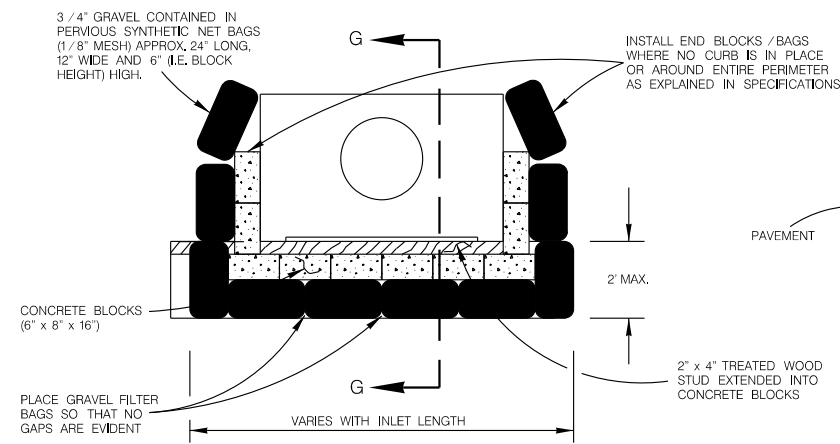


**PROFILE**  
SCALE : 1" = 6'

**GENERAL NOTES**

1. THE LENGTH OF THE TYPE 2 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, BUT NOT LESS THAN 50'.
2. THE TREATED TIMBER PLANKS SHALL BE ATTACHED TO THE RAILROAD TIES WITH 1/2" x 6" MIN. L.G. BOLTS. OTHER FASTENERS MAY BE USED AS APPROVED BY THE ENGINEER.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN. AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE APPROACH TRANSITIONS SHOULD BE NO STEEPER THAN 6:1 AND CONSTRUCTED AS DIRECTED BY THE ENGINEER.
5. THE CONSTRUCTION EXIT FOUNDATION COURSE SHALL BE FLEXIBLE BASE, BITUMINOUS CONCRETE, PORTLAND CEMENT CONCRETE OR OTHER MATERIAL AS APPROVED BY THE ENGINEER.
6. THE CONSTRUCTION EXIT SHOULD BE GRADED TO ALLOW DRAINAGE TO A SEDIMENT TRAPPING DEVICE.
7. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

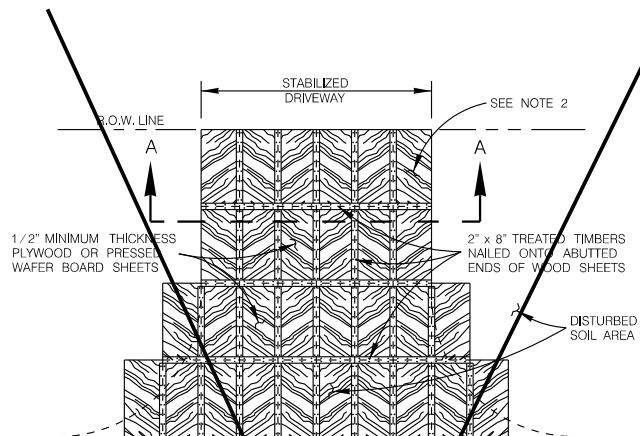
**CONSTRUCTION EXIT - TYPE 2**



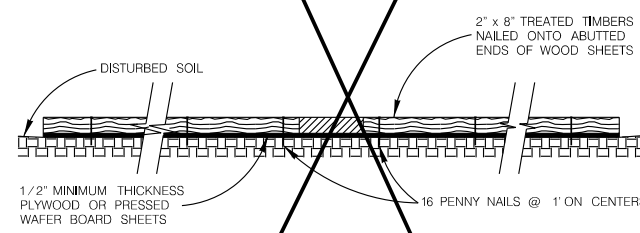
**PLAN**  
SCALE : 1" = 5'

NOTE: GRAVEL FILTERS CAN BE USED ON PAVEMENT OR BARE GROUND.

**CURB INLET GRAVEL FILTER**



**PLAN**  
SCALE : 1" = 20'

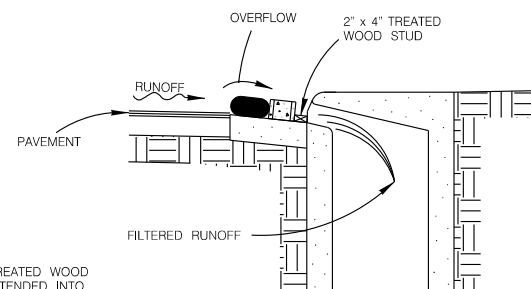


**SECTION A-A**  
SCALE : 1" = 2'

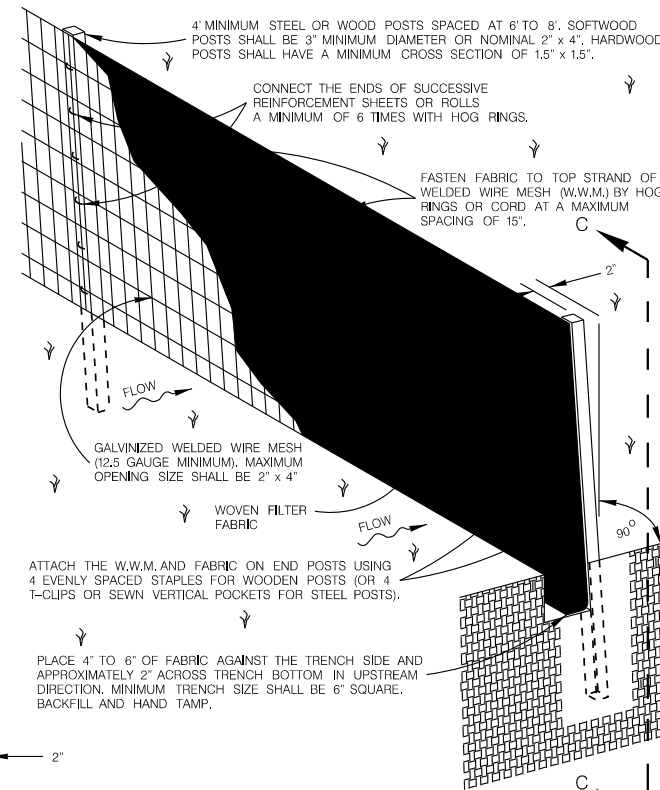
**GENERAL NOTES**

1. THE LENGTH OF THE TYPE 3 CONSTRUCTION EXIT SHALL BE AS INDICATED ON THE PLANS, OR AS DIRECTED BY THE ENGINEER.
2. THE TYPE 3 CONSTRUCTION EXIT MAY BE CONSTRUCTED FROM OPEN GRADED CRUSHED STONE WITH A SIZE OF 2 TO 4 INCHES SPREAD A MINIMUM OF 4 INCHES THICK TO THE LIMITS SHOWN ON THE PLANS.
3. THE TREATED TIMBER PLANKS SHALL BE #2 GRADE MIN. AND SHOULD BE FREE FROM LARGE AND LOOSE KNOTS.
4. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

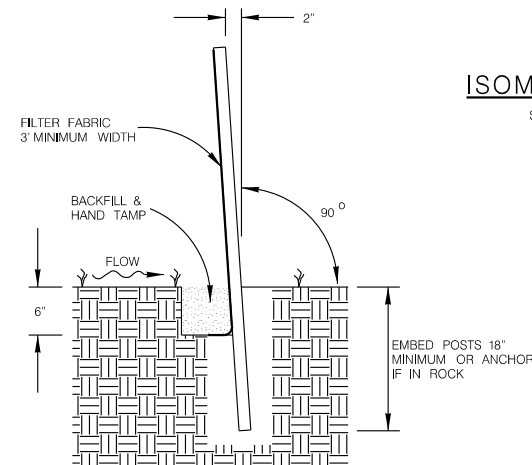
**CONSTRUCTION EXIT - TYPE 3**



**SECTION G-G**  
SCALE : 1" = 5'



**ISOMETRIC VIEW**  
SCALE : 1" = 2'



**SECTION C-C**  
SCALE : 1" = 2'

**SEDIMENT CONTROL FENCE USAGE GUIDELINES**

A SEDIMENT CONTROL FENCE MAY BE CONSTRUCTED NEAR THE DOWNSTREAM PERIMETER OF A DISTURBED AREA ALONG A CONTOUR TO INTERCEPT SEDIMENT FROM OVERLAND RUN-OFF. A 2 YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE TO BE FILTERED.

SEDIMENT CONTROL FENCE SHOULD BE SIZED TO FILTER A MAXIMUM FLOW THRU RATE OF 100 GPM / FT SQUARED. SEDIMENT CONTROL FENCE IS NOT RECOMMENDED TO CONTROL EROSION FROM A DRAINAGE AREA LARGER THAN 2 ACRES.

**GENERAL NOTES**

1. THE GUIDELINES SHOWN HEREON ARE SUGGESTIONS ONLY AND MAY BE MODIFIED BY THE ENGINEER.

**TEMPORARY SEDIMENT CONTROL FENCE**

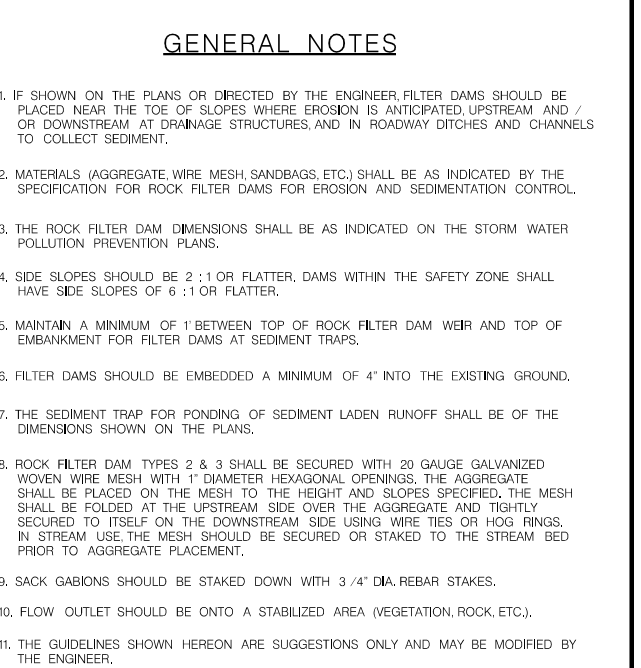
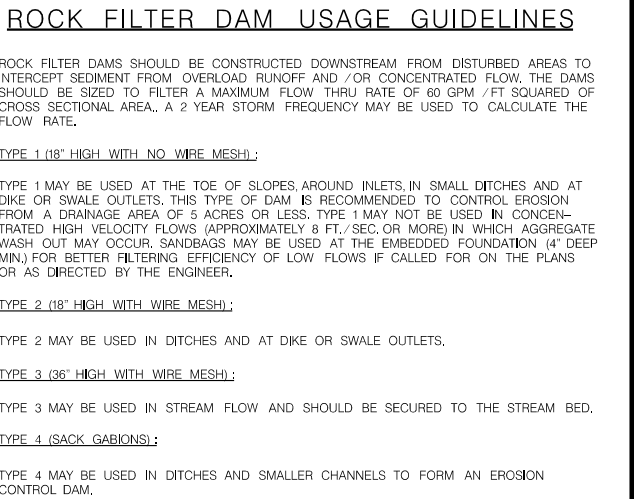
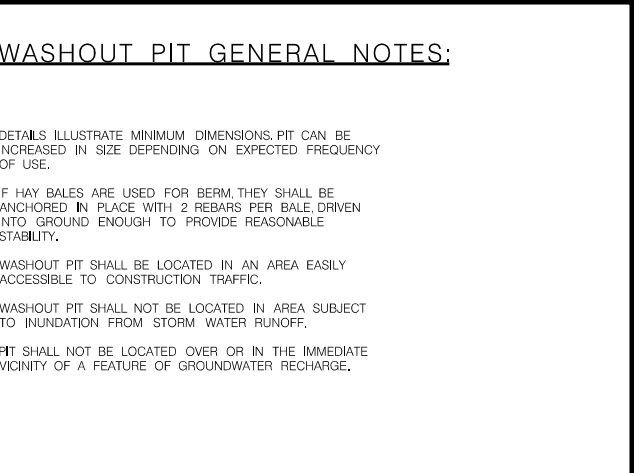
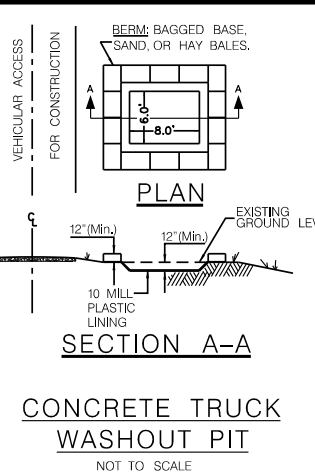
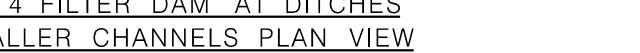
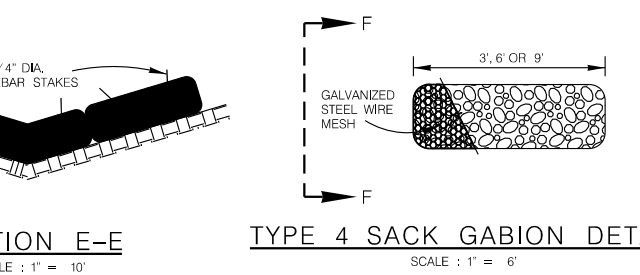
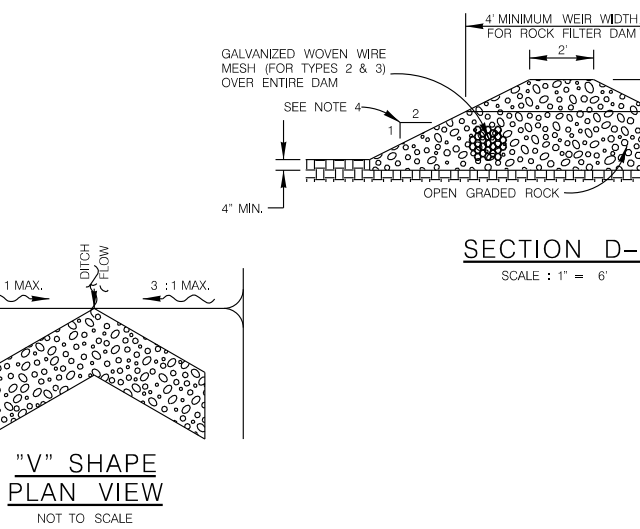
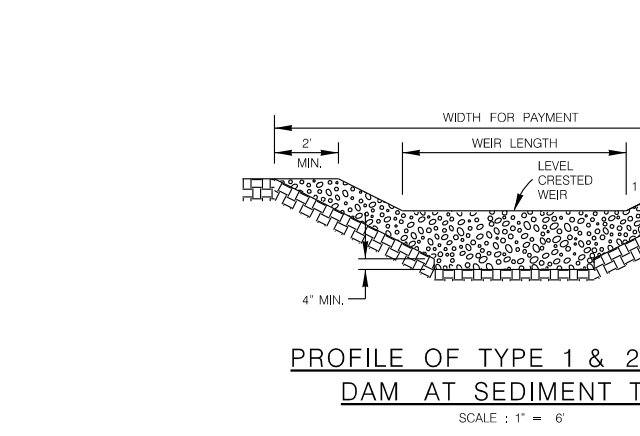
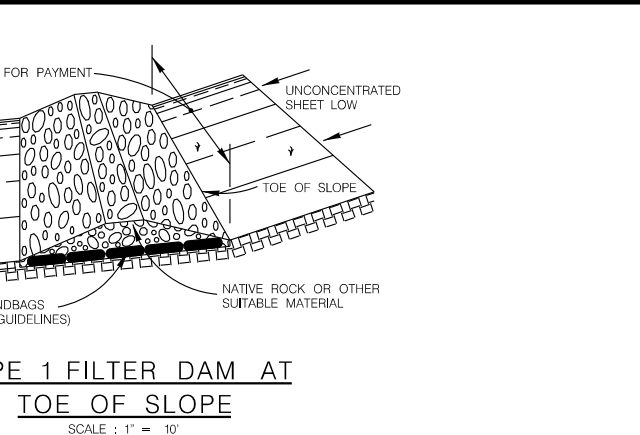
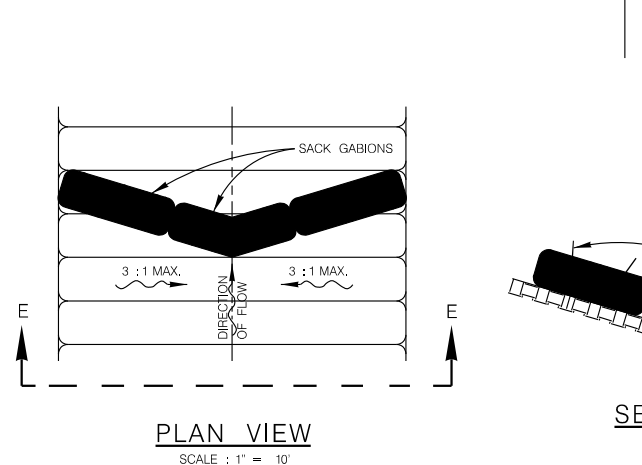
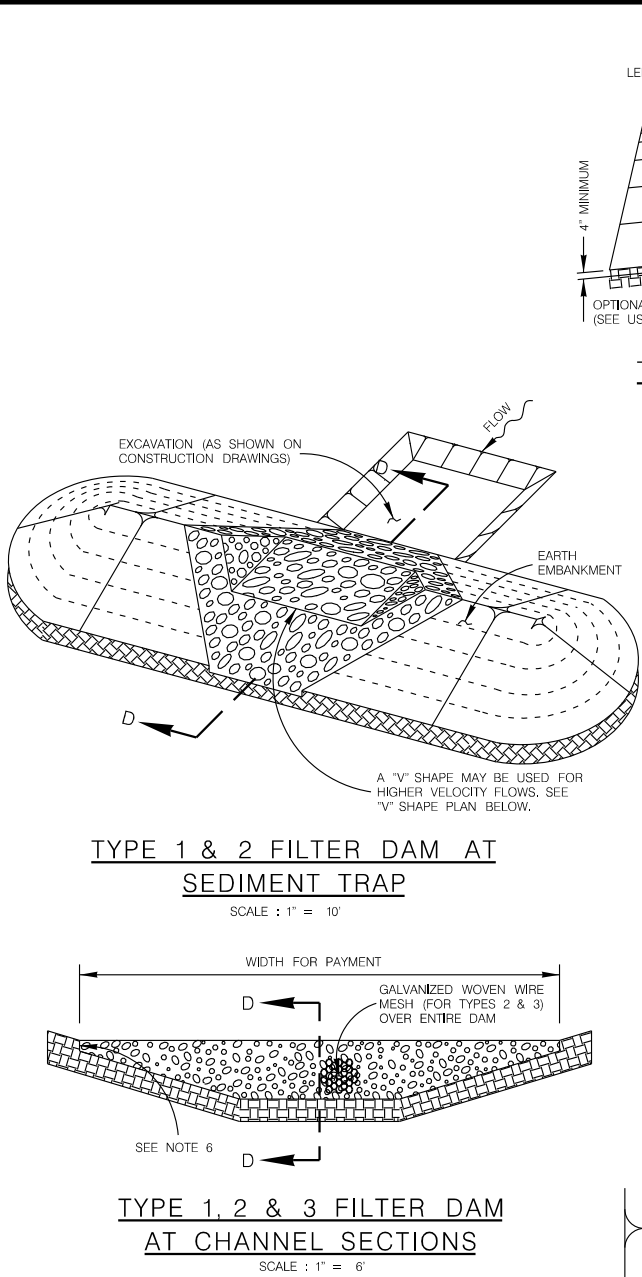
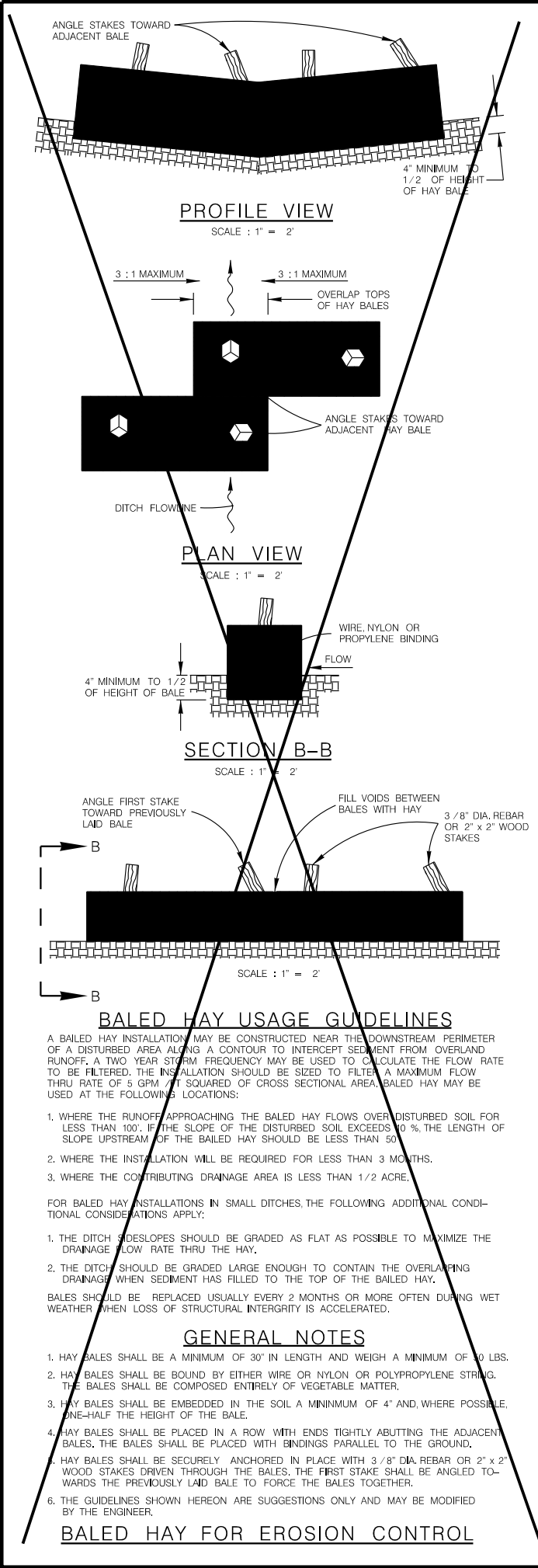
JANUARY 2005

CITY OF SAN ANTONIO  
CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT

TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 1

% SUBMITTAL PROJECT NO.:	DATE: 7/17/2019
DRWN. BY: V. VASQUEZ	SHEET NO.: 43 OF 45

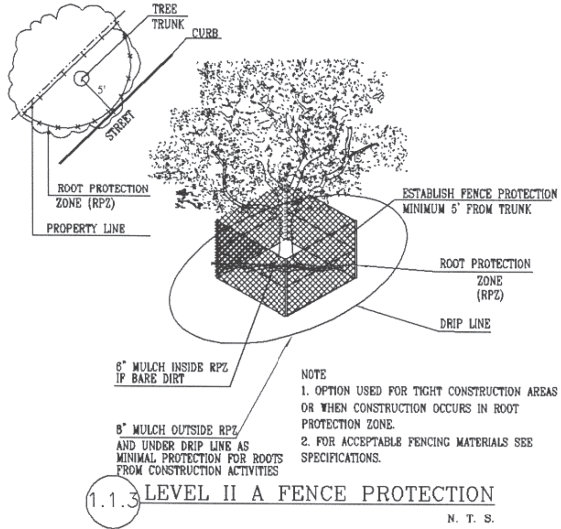
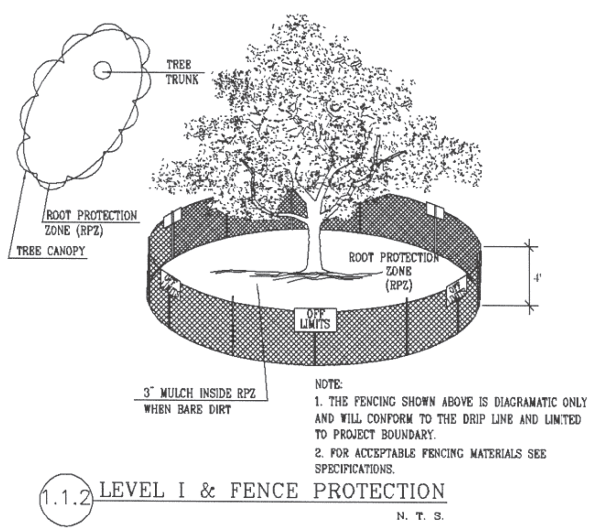
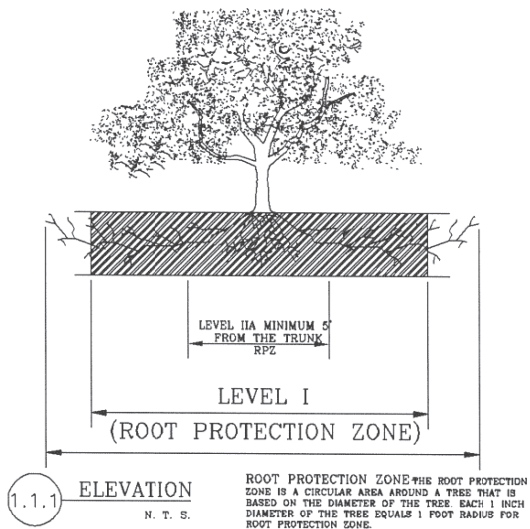




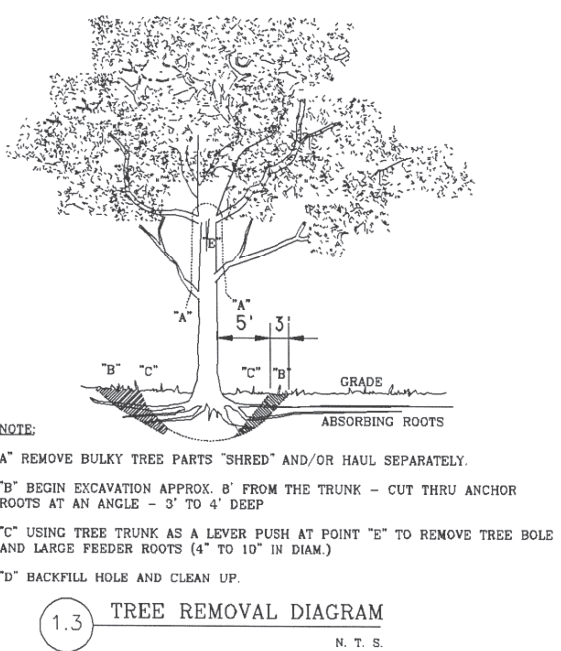
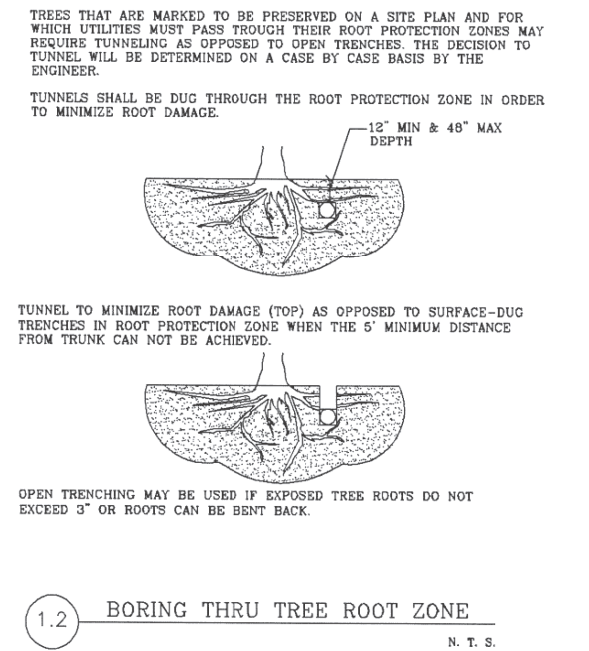
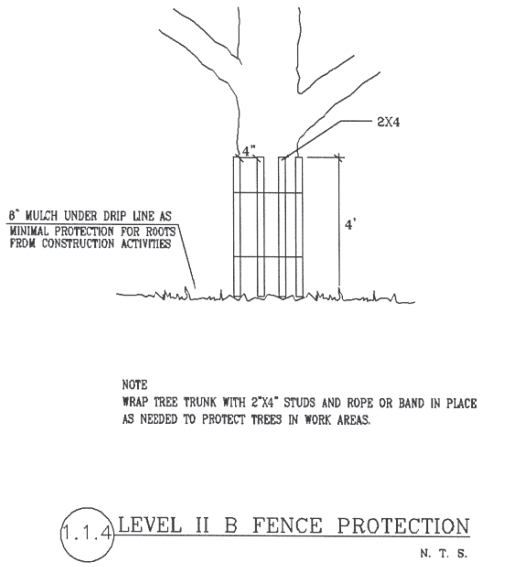
JANUARY 2005		
CITY OF SAN ANTONIO CAPITAL IMPROVEMENTS MANAGEMENT SERVICES DEPARTMENT		
TEMPORARY EROSION, SEDIMENT & WATER POLLUTION CONTROL MEASURES STANDARDS 2		
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DRWN. BY: V. VASQUEZ	DSGN. BY:	CHKD. BY:
SHEET NO.:		44 OF 45



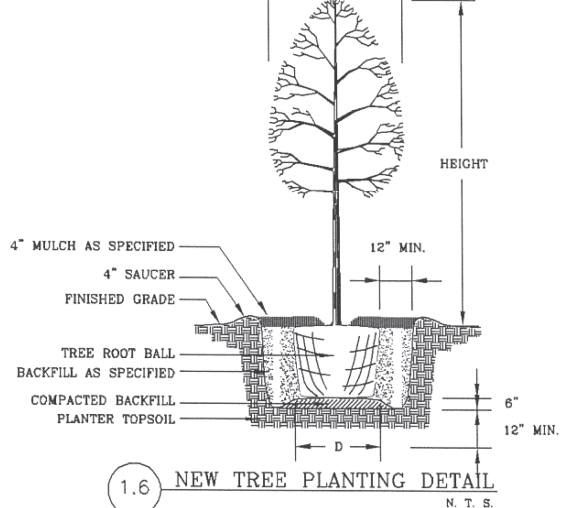
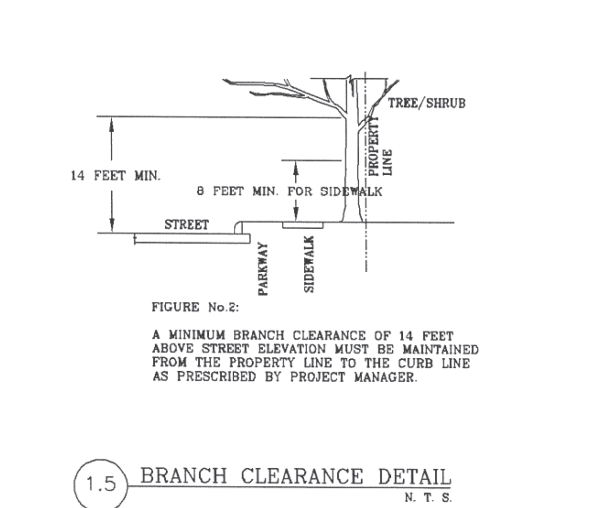
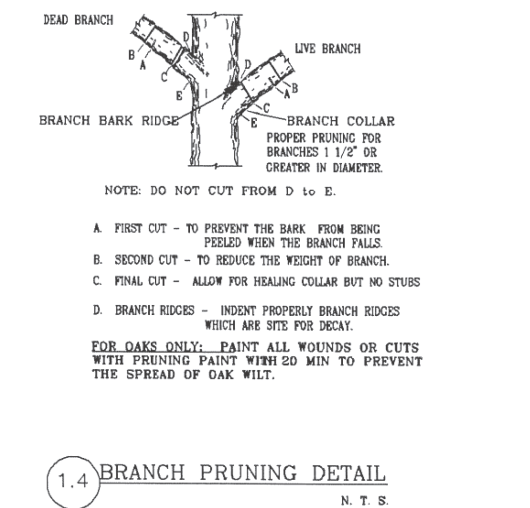
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- GENERAL NOTES**
- ALL THE TREES WITH A DIAMETER GREATER THAN 3 INCHES AFFECTED BY CONSTRUCTION SHALL HAVE THE LIMBS AND ROOTS TRIMMED AND PRUNED ACCORDING TO ITEM No. 802. TREE PRUNING, SOIL AMENDING AND FERTILIZATION, UNLESS SPECIFIED TREES SHALL RECEIVE LEVEL 2 PROTECTION AS PER ITEM No. 802. TREES TO RECEIVE LEVEL 1 PROTECTION AS PER ITEM No. 802 ARE SHOWN ON TREE PROTECTION TABLE ON THIS SHEET.
  - ALL TREES SHALL REMAIN UNLESS NOTED ON THE PLANS.
  - NO SITE PREPARATION WORK SHALL BEGIN IN AREAS WHERE TREE PRESERVATION AND TREATMENT MEASURES HAVE NOT BEEN COMPLETED AND APPROVED.
  - TREE PROTECTION FENCING SHALL BE REQUIRED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.
  - THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN THREE INCHES IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION. THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR.
  - THE ROOT PROTECTION ZONE IS THAT AREA SURROUNDING A TREE, AS MEASURED BY A RADIUS FROM THE TREE TRUNK, IN WHICH NO EQUIPMENT, VEHICLES OR MATERIALS MAY OPERATE OR BE STORED. THE REQUIRED RADIUS LENGTH IS 1 FOOT PER DIAMETER INCH OF THE TREE. FOR EXAMPLE, A 10-INCH DIAMETER TREE WOULD HAVE A 5-FOOT RADIUS ROOT PROTECTION ZONE AROUND THE TREE. ROOTS OR BRANCHES THAT ARE IN CONFLICT WITH THE CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. LIVE OAK WOUNDS SHALL BE PAINTED OVER, WITHIN 20 MINUTES TO PREVENT OAK WILT.
  - ACCESS TO FENCED AREAS WILL BE PERMITTED ONLY WITH THE APPROVAL OF THE ENGINEER OR CITY INSPECTOR.
  - GRADING, IF REQUIRED, SHALL BE LIMITED TO A 3 INCH CUT OR FILL WITHIN THE FENCED ROOT ZONE AREAS.
  - TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS SHALL BE REMOVED BY HAND AS DIRECTED BY THE PROJECT MANAGER OR CITY INSPECTOR.
  - TREES DAMAGED OR LOST DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED TO THE ENGINEER'S SATISFACTION.
  - EXPOSED ROOTS SHALL BE COVERED AT THE END OF EACH DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.
  - ANY TREE REMOVAL SHALL BE APPROVED BY THE CITY ARBORIST PRIOR TO ITS REMOVAL.



**1.3 GENERAL NOTES**




100% SUBMITTAL

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM, REVIEW UNDER THE AUTHORITY OF MICHAEL PERSYN, P.E.

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100% SUBMITTAL

No.	Revision	Drawn	Approved	Date
REVISIONS				
		SILVERHORN GOLF COURSE 24-INCH REHAB PACKAGE		
		TREE PROTECTION DETAILS		
DEVELOPER:				
CONT.		BUDGET PROJ.		
SUBMITTED _____				
APPROVED _____				
MAP No.				SHEET 45 OF 45
SECT. No.		JOB No. 18-4540		
DR. MW	CK.			