

- LEGEND**
- CONTROL POINT (NO.5 REBAR)
 - FOUND PROPERTY
 - SET NO.5 REBAR W/CAP STAMPED PS 7924 OR P.K. NAIL W/SHINER STAMPED PS 7924 OR AS SHOWN ON DRAWING
 - CHAINLINK FENCE
 - WOOD FENCE
 - BLOCK WALL
 - CLEANOUT
 - ELECTRIC BOX
 - LIGHT POLE
 - LIGHT FIXTURE
 - SIGN
 - FIRE HYDRANT
 - WATER VALVE
 - MAIL BOX
 - WATER METER
 - EVERGREEN TREE
 - DECIDUOUS TREE
 - EDGE OF PAVEMENT
 - FLOW ARROW
 - 5181 EXISTING CONTOUR
 - 86 DESIGN CONTOUR

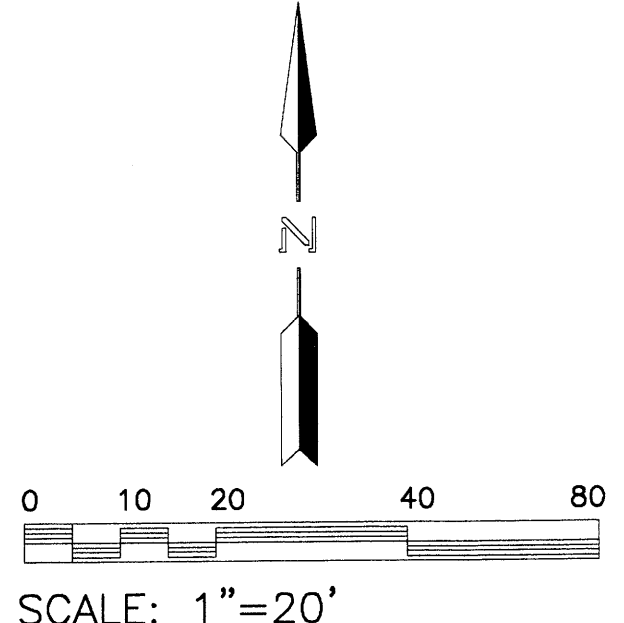
- NOTES**
1. REMOVE TREE AND ROOTS FROM THE SITE TO 3' BELOW EXISTING GROUND COST INCIDENTAL TO PROJECT.
 2. REMOVE LIGHT POLE AND RELOCATE TO LOCATION OF NOTE 4.
 3. REMOVE EXISTING OUTDOOR OUTLET AND RELOCATE TO LOCATION OF NOTE 4.
 4. SET LIGHT POLE AND OUTDOOR OUTLET WITHIN THE SHOWN ISLAND. ALL ELECTRICAL WORK TO BE DONE BY LICENSED ELECTRICIAN.
 5. STANDARD CURB & GUTTER TO BE BUILT ACCORDING TO CITY OF ALBUQUERQUE (COA) DETAIL DWG. 2415.
 6. DOUBLE SIDEWALK CULVERT WITH STEEL PLATE TO BE BUILT ACCORDING TO CITY OF ALBUQUERQUE DETAIL DWG 2236.
 7. ASPHALT CONCRETE SHALL BE 1800 LB STABILITY. ASPHALT CONCRETE AND PLACEMENT OF ASPHALT CONCRETE SHALL CONFORM TO CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS, CURRENT EDITION.
 8. PORTLAND CEMENT CONCRETE AND PLACEMENT OF PORTLAND CEMENT CONCRETE SHALL CONFORM TO CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS, CURRENT EDITION.
 9. CLEARING & GRUBBING AND ALL EARTHWORK SHALL CONFORM TO CITY OF ALBUQUERQUE, STANDARD SPECIFICATIONS FOR PUBLIC WORKS, CURRENT EDITION. PAYMENT FOR CLEARING AND GRUBBING AND ALL EARTHWORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND THE PRICE INCLUDED IN OTHER ITEMS. THE CONTRACTOR SHALL PROVIDED A CERTIFICATION FROM A LICENSED SOILS TESTING LAB THAT THE IMPORTED FILL MATERIAL COMPLIES WITH THE AFOREMENTIONED SPECIFICATIONS.
 10. SUBGRADE PREPARATION SHALL CONFORM TO CITY OF ALBUQUERQUE, STANDARD SPECIFICATIONS FOR PUBLIC WORKS, CURRENT EDITION.
 11. MANUFACTURE AND MATERIAL CERTIFICATIONS AS REQUIRED BY THE CITY OF ALBUQUERQUE, STANDARD SPECIFICATIONS FOR PUBLIC WORKS, CURRENT EDITION, SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO CONSTRUCTION FOR APPROVAL.
 12. TESTING REQUIREMENTS AND CERTIFICATIONS AS REQUIRED BY THE CITY OF ALBUQUERQUE STANDARD SPECIFICATION FOR PUBLIC WORKS, CURRENT EDITION SHALL BE SUBMITTED TO THE ENGINEER.
 13. CONTRACTOR SHALL COORDINATE WITH THE LANDSCAPE CONTRACTOR HIRED BY THE OWNER. THE CONTRACTOR SHALL COMPLETE THE SITE EARTHWORK PRIOR TO THE ELECTRICIAN AND LANDSCAPE CONTRACTOR PLACING UNDERGROUND LINE. ALL OTHER WORK SHALL NOT BEGIN UNTIL THE UNDERGROUND LINES ARE IN PLACE.
 14. PAINT AND PAINTING OF STRIPS SHALL CONFORM TO THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORK, CURRENT EDITION.
 15. CONSTRUCTION STAKING SERVICES SHALL BE PROVIDED BY THE CONTRACTOR AND CONSIDERED INCIDENTAL TO THE PROJECT.
 16. CONTRACTOR SHALL BE BONDED TO WORK WITHIN THE CITY OF ALBUQUERQUE RIGHT-OF-WAY.

NOTICE TO CONTRACTORS
FOR WORK WITHIN CITY OF ALBUQUERQUE RIGHT-OF-WAY
(SIDEWALK CULVERT, SIDEWALK, AND DRAINAGE CHANNEL)

1. AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY.
2. ALL WORK DETAILED ON THESE PLANS TO BE PERFORMED, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF ALBUQUERQUE INTERIM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION.
3. TWO WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT LINE LOCATING SERVICE, 765-1234, FOR LOCATION OF EXISTING UTILITIES.
4. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL CONSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
5. BACKFILL COMPACTION SHALL BE ACCORDING TO TRAFFIC/STREET USE.
6. MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
7. WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS

APPROVAL	NAME	DATE
INSPECTOR		

COORDINATE & ELEVATION TABLE				
PT #	NORTH	EAST	BACK OF CURB EL.	FLOWLINE EL.
18	1524201.48	371517.51	5184.97	5184.30
30	1524219.68	371369.85		
32	1524185.02	371423.26		
38	1524128.40	371390.93	5187.00	5186.50
41	1524134.49	371371.41	5187.40	
42	1524122.15	371385.42	5187.00	5186.50
57	R=1.85'	1524143.52	371398.54	
65	R=3.23'	1524170.87	371417.93	
66	R=3.23'	1524195.66	371434.01	
67		1524091.30	371420.43	5186.08 5185.41

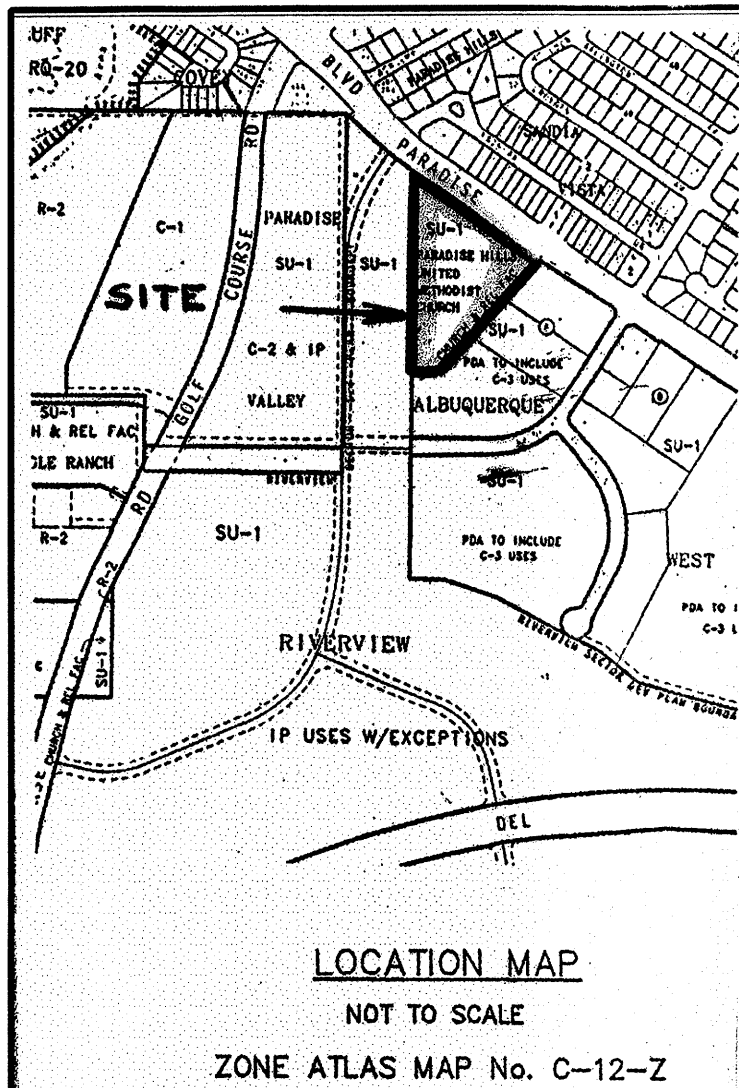


PARADISE HILLS UNITED METHODIST CHURCH PARKING LOT IMPROVEMENTS GRADING & DRAINAGE PLAN

DESIGNED BY: SRJR
DRAWN BY: SRJR
CHECKED BY: SRJR
DATE: 6/04
SHEET: 2 OF 2

Professional Engineer Seal: SANTIAGO ROMERO, NEW MEXICO, 121004, PROFESSIONAL SURVEYOR

ASSOC. and Associates, Inc. ENGINEERS • SURVEYORS 4804 EXETER BLVD. N.E. SUITE 200 ALBUQUERQUE, NEW MEXICO 87110 (505) 884-5119

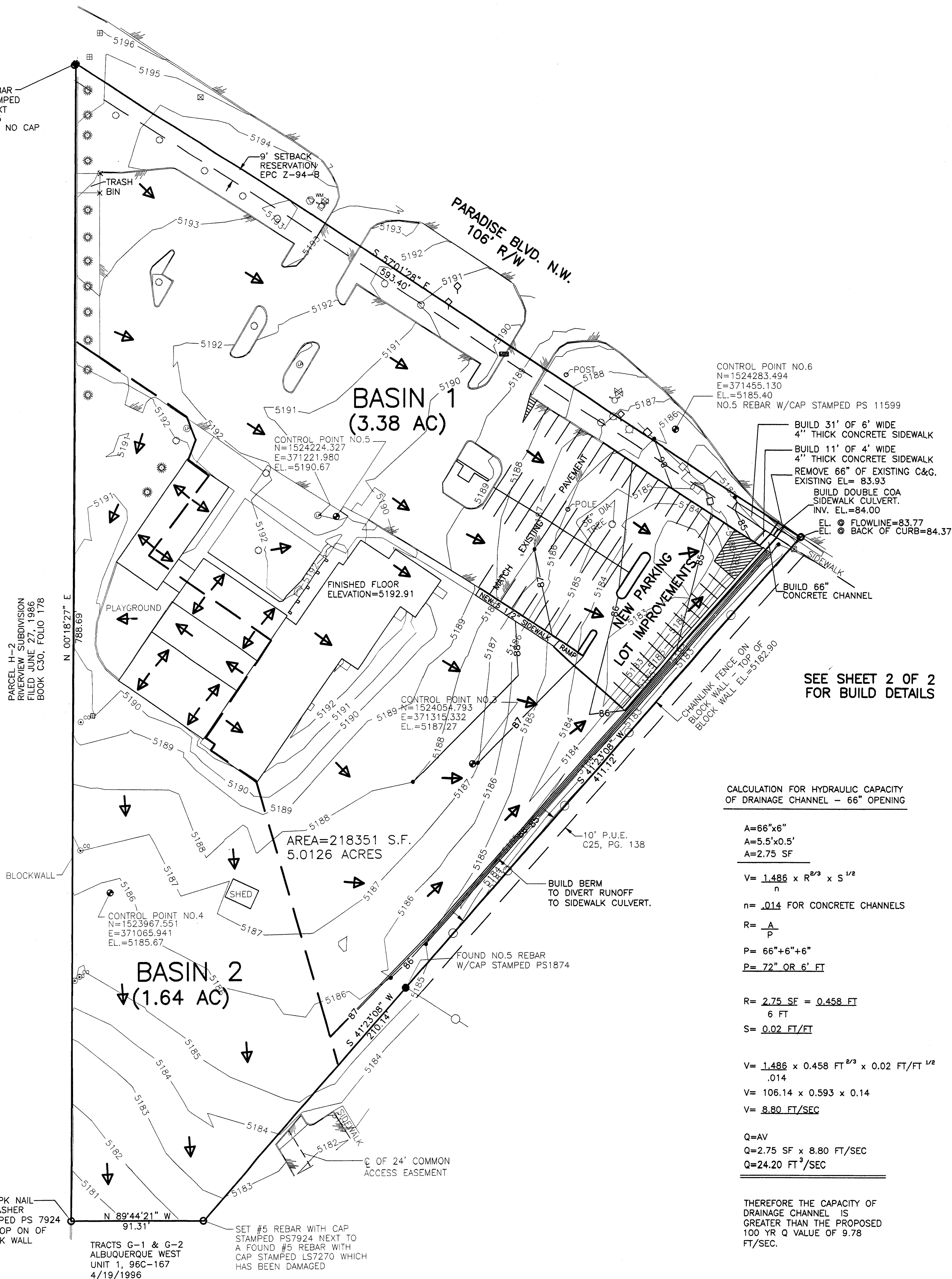


LEGEND

- CONTROL POINT(NO.5 REBAR)
- FOUND PROPERTY
- SET NO.5 REBAR W/CAP STAMPED PS 7924 OR P.K. NAIL W/SHINER STAMPED PS 7924 OR AS SHOWN ON DRAWING
- CHAINLINK FENCE
- WOOD FENCE
- BLOCK WALL
- CLEANOUT
- ELECTRIC BOX
- LIGHT POLE
- LIGHT FIXTURE
- SIGN
- FIRE HYDRANT
- WATER VALVE
- MAIL BOX
- WATER METER
- EVERGREEN TREE
- DECIDUOUS TREE
- EDGE OF PAVEMENT
- FLOW ARROW
- 5181 EXISTING CONTOUR
- 86 DESIGN CONTOUR
- BASIN LINE

SET #5 REBAR W/CAP STAMPED PS7924 NEXT TO BENT #5 REBAR WITH NO CAP

PARCEL H-2 RIVERVIEW SUBDIVISION FILED JUNE 27, 1986 BOOK C30, FOLIO 178



SEE SHEET 2 OF 2 FOR BUILD DETAILS

CALCULATION FOR HYDRAULIC CAPACITY OF DRAINAGE CHANNEL - 66" OPENING

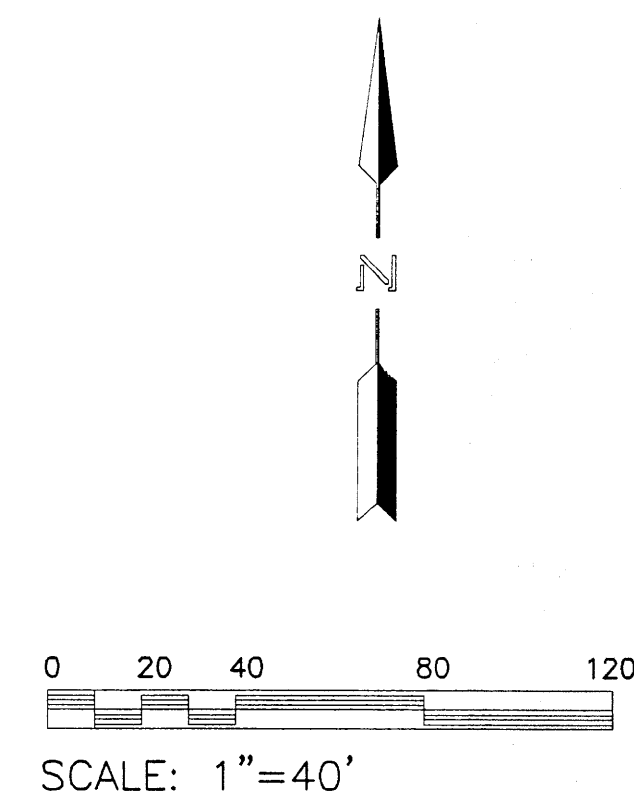
$$\begin{aligned} A &= 66" \times 6" \\ A &= 5.5' \times 0.5' \\ A &= 2.75 \text{ SF} \\ V &= \frac{1.486}{n} \times R^{2/3} \times S^{1/2} \\ n &= .014 \text{ FOR CONCRETE CHANNELS} \\ R &= \frac{A}{P} \\ P &= 66" + 6" + 6" \\ P &= 72" \text{ OR } 6' \text{ FT} \\ R &= \frac{2.75 \text{ SF}}{6 \text{ FT}} = 0.458 \text{ FT} \\ S &= 0.02 \text{ FT/FT} \\ V &= \frac{1.486}{.014} \times 0.458 \text{ FT}^{2/3} \times 0.02 \text{ FT/FT}^{1/2} \\ V &= 106.14 \times 0.593 \times 0.14 \\ V &= 8.80 \text{ FT/SEC} \\ Q &= AV \\ Q &= 2.75 \text{ SF} \times 8.80 \text{ FT/SEC} \\ Q &= 24.20 \text{ FT}^3/\text{SEC} \end{aligned}$$

THEREFORE THE CAPACITY OF DRAINAGE CHANNEL IS GREATER THAN THE PROPOSED 100 YR Q VALUE OF 9.78 FT³/SEC.

CALCULATION FOR HYDRAULIC CAPACITY OF STANDARD DOUBLE SIDEWALK CULVERT - 24" OPENINGS

$$\begin{aligned} A &= \text{AREA OF OPENING} \\ A &= 2(24" \times 6") \\ A &= 2(2.0' \times 0.5') \\ A &= 2(1 \text{ SF}) \\ A &= 2 \text{ SF} \\ V &= \frac{1.486}{n} \times R^{2/3} \times S^{1/2} \\ n &= .014 \text{ FOR CONCRETE CHANNELS} \\ R &= \frac{A}{P} \\ P &= 2(24" + 6" + 6") \\ P &= 2(36") \\ P &= 72" \text{ OR } 6' \text{ FT} \\ R &= \frac{2.0 \text{ SF}}{6 \text{ FT}} = 0.33 \text{ FT} \\ S &= 0.02 \text{ FT/FT} \\ V &= \frac{1.486}{.014} \times 0.33 \text{ FT}^{2/3} \times 0.02 \text{ FT/FT}^{1/2} \\ V &= 106.14 \times 0.476 \times 0.14 \\ V &= 7.07 \text{ FT/SEC} \\ Q &= AV \\ Q &= 2.0 \text{ SF} \times 7.07 \text{ FT/SEC} \\ Q &= 14.14 \text{ FT}^3/\text{SEC} \end{aligned}$$

THEREFORE THE CAPACITY OF THE DOUBLE CULVERT EXCEEDED THE PROPOSED 100 YR Q VALUE OF 9.78 FT³/SEC



LEGAL DESCRIPTION

PARADISE HILLS UNITED METHODIST CHURCH TRACT 4700 PARADISE BOULEVARD N.W.

EXISTING CONDITIONS

THIS DRAINAGE PLAN IS AN AMENDMENT TO PREVIOUSLY APPROVED DRAINAGE PLANS (C-12/D-11) & (C-12/D-11A). THE EXISTING CONDITIONS ARE THE SAME AS THE PROPOSED CONDITIONS AS OUTLINE IN DRAINAGE REPORT (C-12/D-11A) DATED 3/95 AND SUBMITTED BY EASTERLING & ASSOC. INC. THE RICHARD J PINO POST OFFICE SITE IS LOCATED EAST OF AND DOWNSTREAM OF THE STUDY SITE. THE POST OFFICE APPROVED DRAINAGE PLAN IS (C12/D3B5), SUBMITTED BY CHAVEZ-GRIEVES CONSULTING ENGINEERS, INC. ON APRIL, 1996. THE EXISTING RETENTION POND WAS CONSTRUCTED PER THE POST OFFICE DRAINAGE PLAN TO HOLD THE CHURCH'S ONSITE FLOWS UNTIL THE VACANT PORTION OF THE CHURCH IS DEVELOPED. THE DISCHARGE OF CHURCH FLOWS TO PARADISE BLVD. WAS APPROVED PER THE POST OFFICE DRAINAGE PLAN CONTINGENT UPON THE ADDITIONAL DEVELOPMENT OF THE VACANT PORTION OF THE CHURCH PROPERTY.

PROPOSED CONDITIONS

THE PROPOSED IMPROVEMENTS CONSISTS OF 1766 SY OF ASPHALT PARKING WITH ASSOCIATED CURB & GUTTERS, A NEW SIDEWALK CULVERT, A DRAINAGE CHANNEL, NEW STRIPPING AND NECESSARY GRADING. ALL IMPROVEMENT ARE LOCATED WITHIN BASIN 1. BASIN 2 REMAINS THE SAME. THE NEW PARKING LOT REQUIRES THAT THE EXISTING RETENTION POND BE FILLED. THE PREVIOUSLY STORED RUNOFF AS WELL AS ADDITIONAL RUNOFF GENERATED BY THIS PROJECT SHALL NOW BE COLLECTED ALONG THE PROPOSED BERM AND NEW CURB & GUTTER AND DIVERTED TO THE NORTHEAST CORNER OF THE SITE TO PARADISE BLVD. THIS PROJECT WAS DESIGNED WITH FUTURE FULL DEVELOPMENT OF BASIN 1 IN MIND.

CONCLUSIONS

AS DEMONSTRATED BY THE TABLE HYDROLOGY SUMMARY SHOWN BELOW, THE TOTAL 100 YEAR Q VALUE FOR BASIN 1 IS 9.78 CFS, OF WHICH 0.98 CFS IS CREATED BY THIS PROJECT. DISCHARGE OF THE FLOW IS TO BE DIVERTED TO PARADISE BLVD. AS APPROVED BY DRAINAGE PLAN (C12/D3B5).

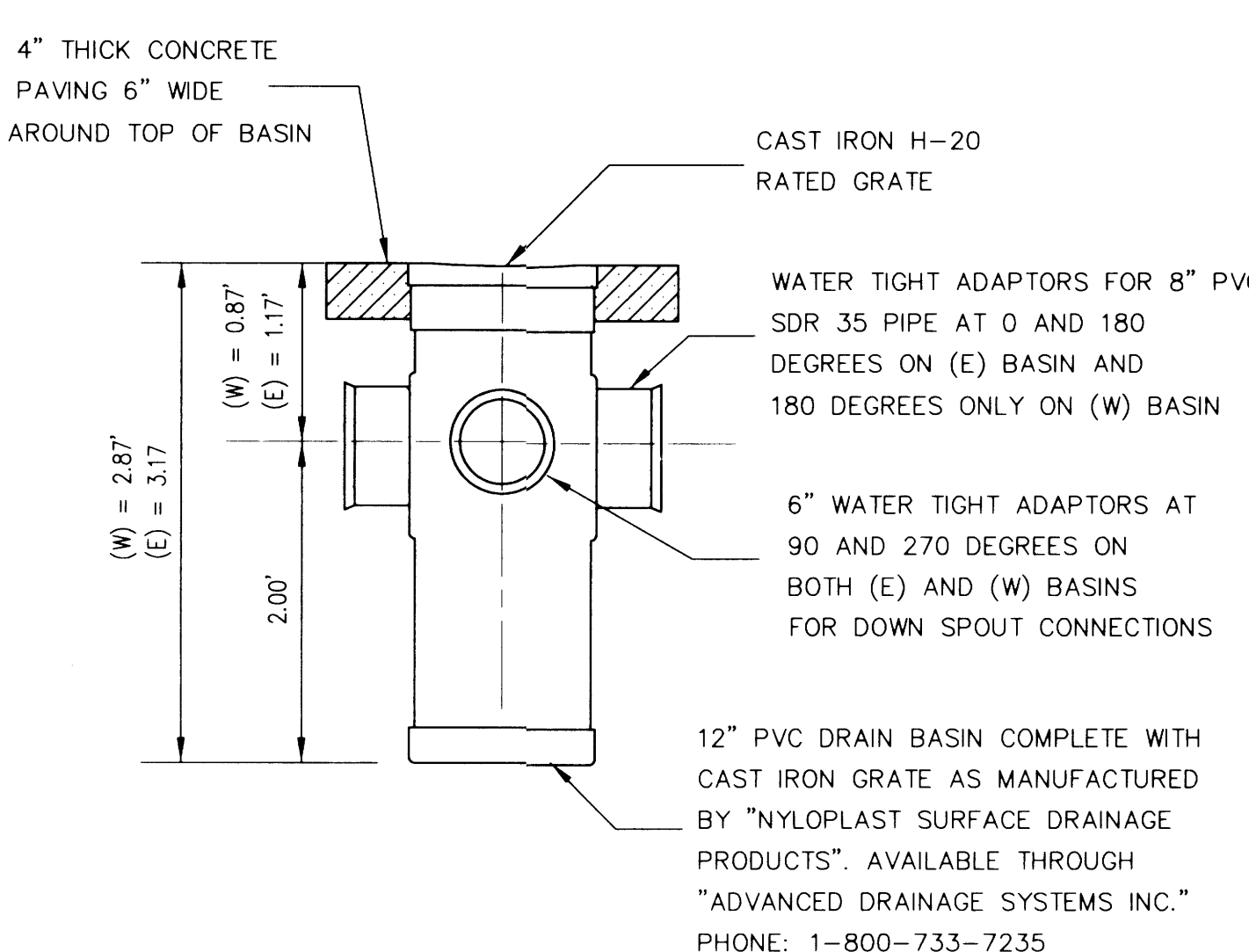
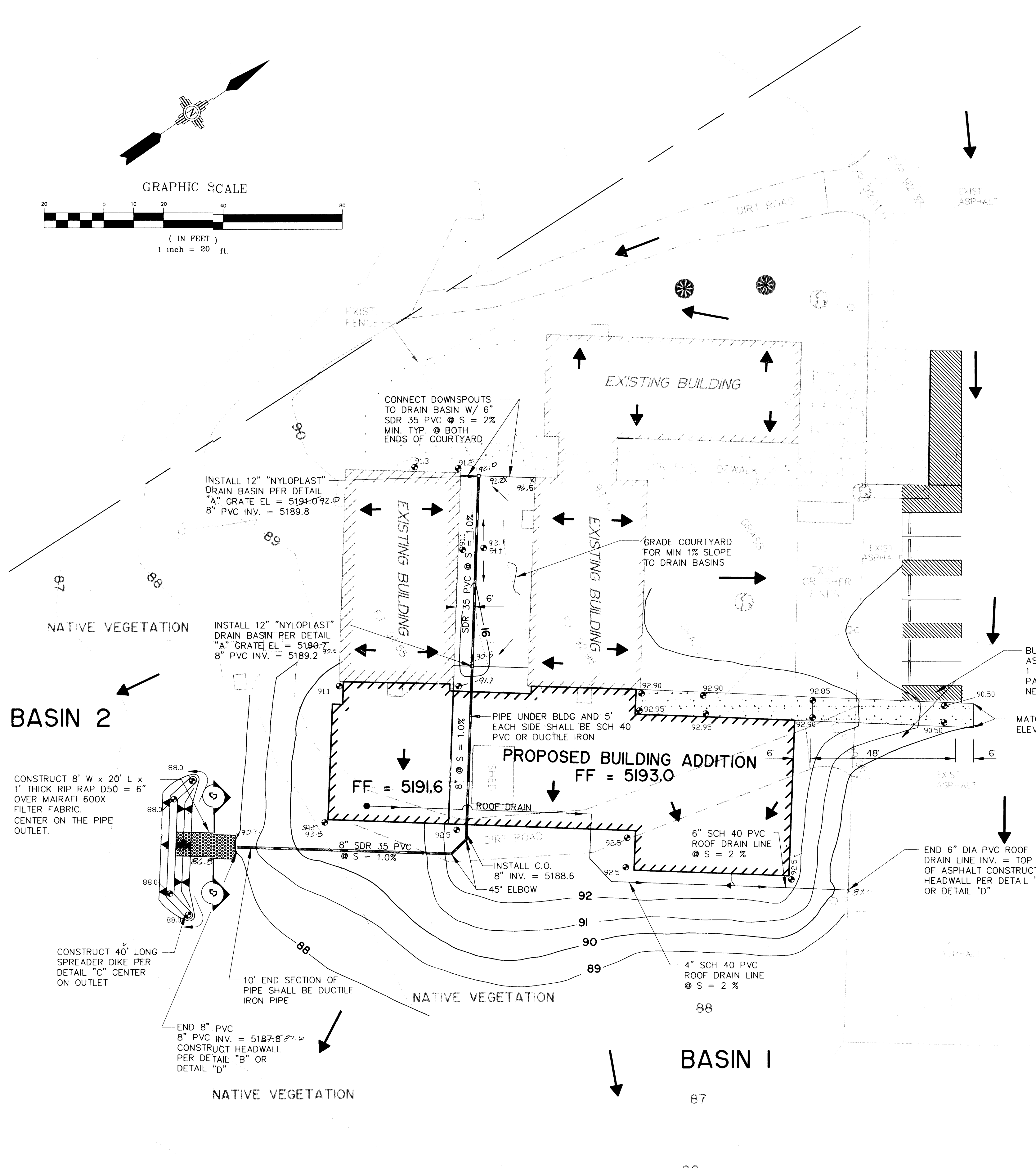
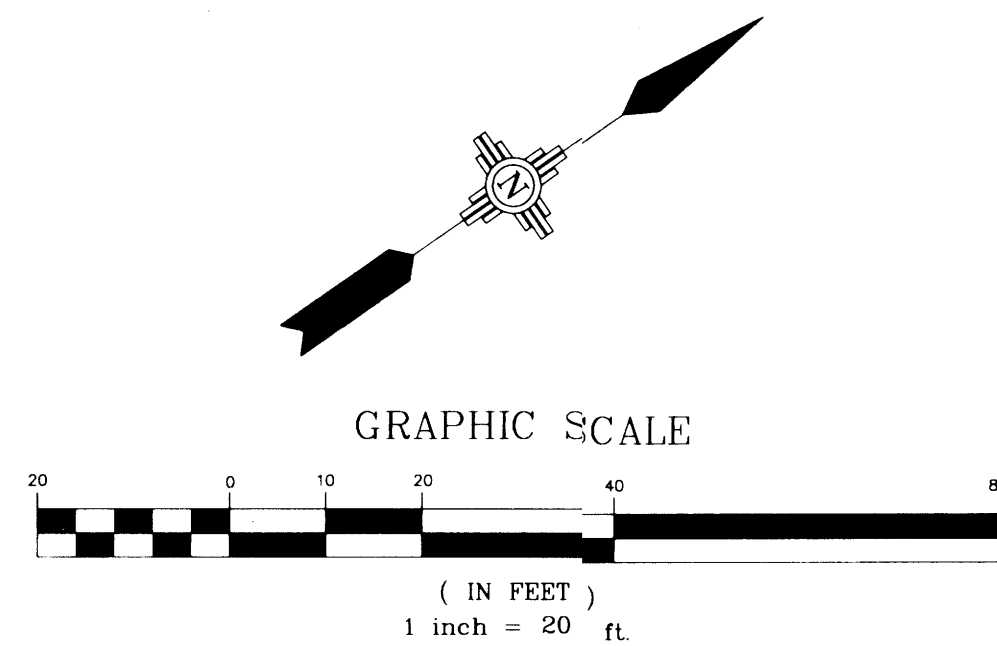
HYDROLOGY SUMMARY

BASIN ID	CONDITION	AREA	PERCENT OF LAND TREATMENT				10 YEAR		100 YEAR	
			A	B	C	D	Q(CFS)	V(CF)	Q(CFS)	V(CF)
1	EXISTING	3.38	51	7	2	40	4.60	8,390	8.80	15,499
1	PROPOSED	3.38	36	7	5	52	5.73	8,587	9.78	15,214
2	EXISTING	1.64	83	0	8	9	0.82	1,081	2.57	3,409
2	PROPOSED	1.64	83	0	8	9	0.82	1,081	2.57	3,409

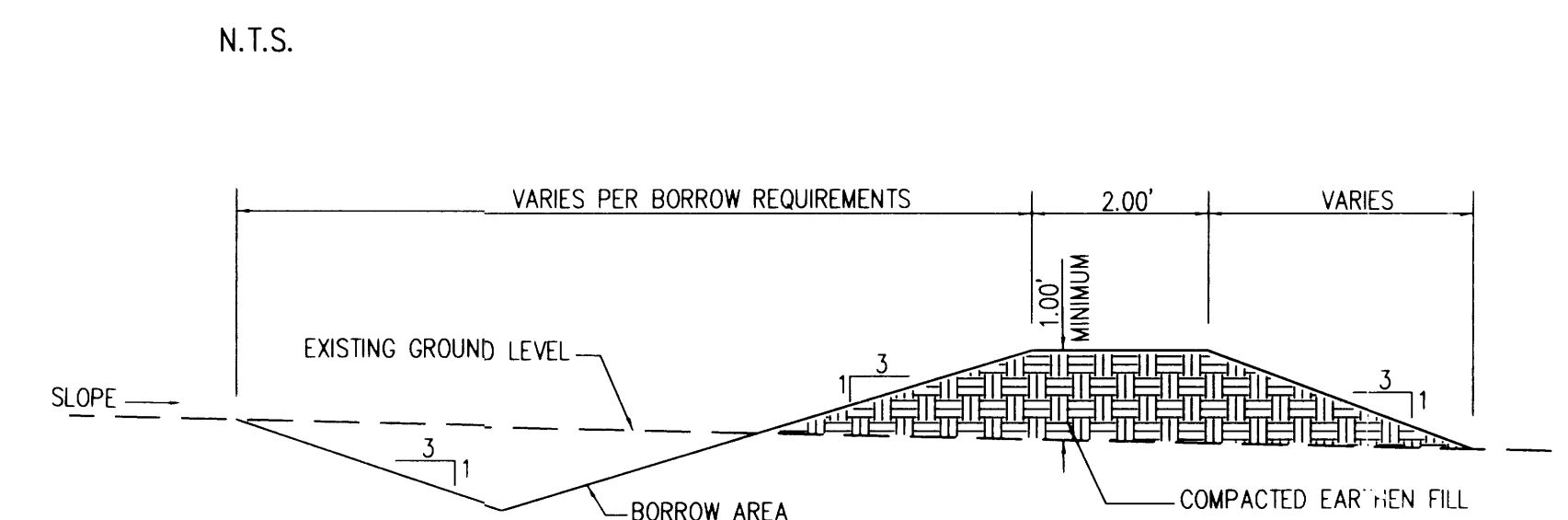
NOTES

- ALL HYDROLOGY CALCULATIONS ARE IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE DEVELOPMENT PROCESS MANUAL (DPM), SECTION 22, VOLUME 1, REVISED 2002.
- ALL DRAINAGE AREAS ARE WITHIN PRECIPITATION ZONE 1.
- EROSION CONTROL- ALL DISTURBED AREAS SHALL BE SURFACED, LANDSCAPED OR REVEGETATED IN THE DEVELOPED CONDITION. EARTH BERMS, STRAW BALES AND/OR DRIFT FENCING SHALL BE IMPLEMENTED AS NECESSARY DURING CONSTRUCTION TO PREVENT SEDIMENT EROSION FROM THE SITE. PAYMENT IS INCIDENTAL TO THE PROJECT.
- ALL DISTURBED AREAS SHALL BE MULCHED AND REVEGETATED WITH CLASS "A" NATIVE SEEDING IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE SPECIFICATIONS. PAYMENT IS INCIDENTAL TO THE PROJECT.

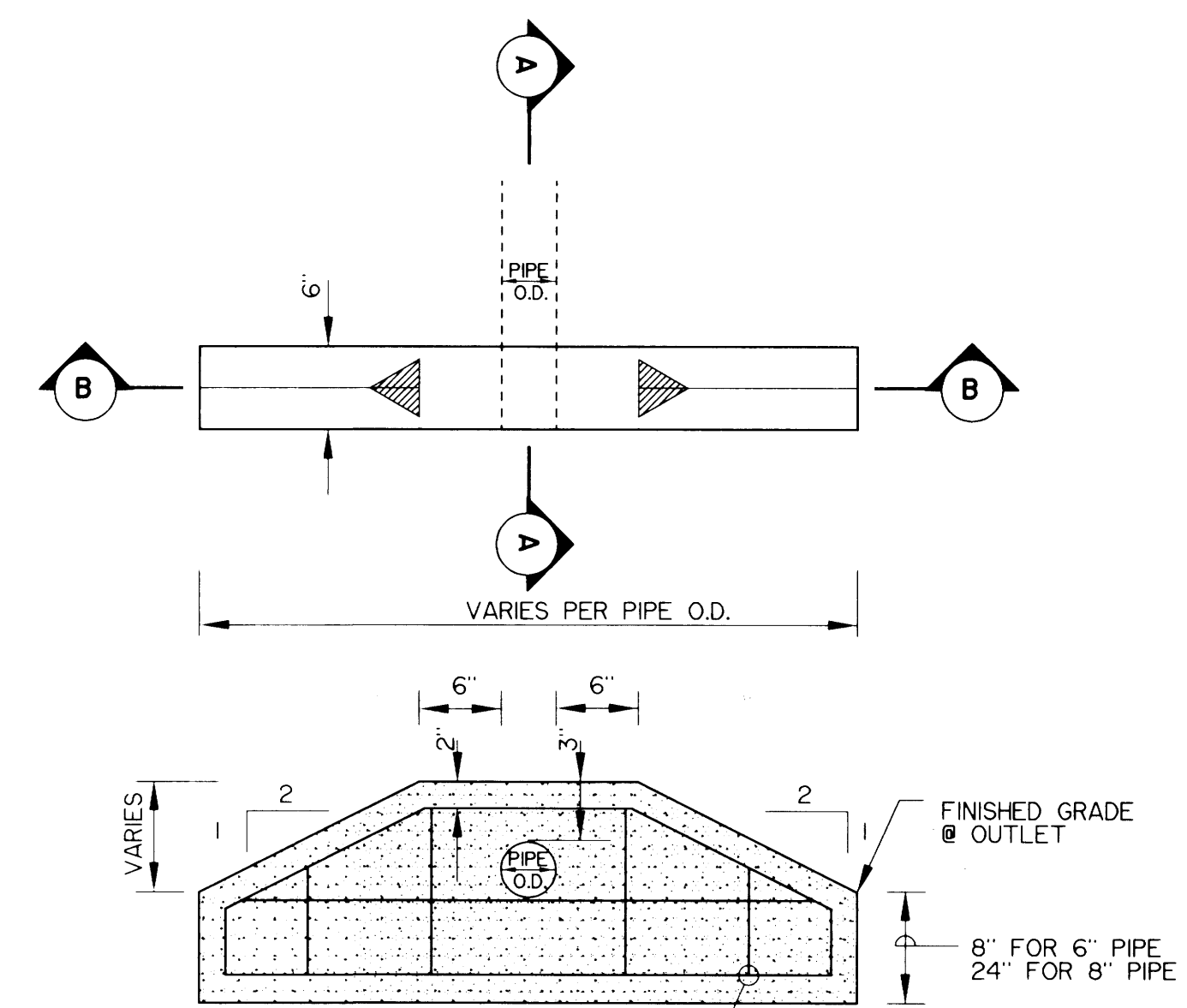
NO.	REVISIONS	BY	DATE
PARADISE HILLS UNITED METHODIST CHURCH PARKING LOT IMPROVEMENTS GRADING & DRAINAGE PLAN			
DESIGNED BY SRJR		DRAWN BY SRJR	
CHECKED BY SRJR		DATE 6/04	
JOB NO. 040107		SHEET 1 OF 2	



DETAIL "A"
12" DRAIN BASIN



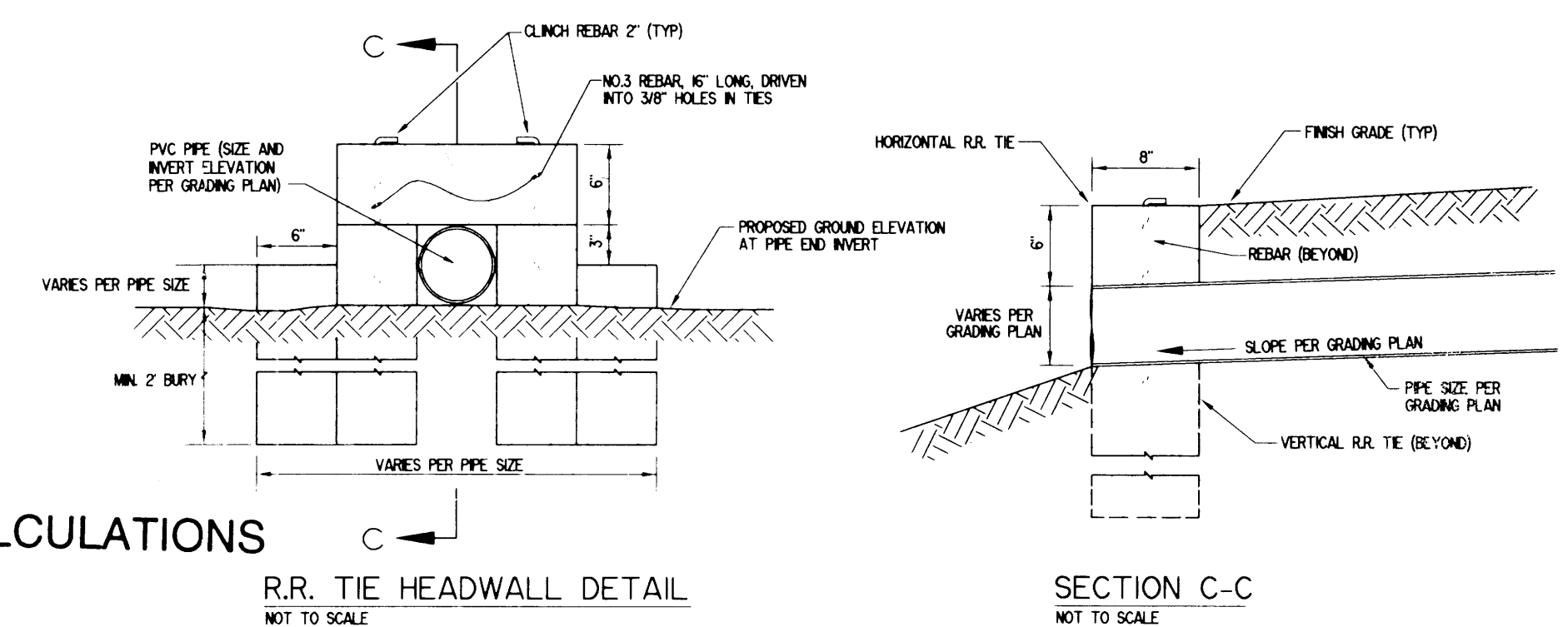
DETAIL "C"
SPREADER DIKE
N.T.S.



SECTION B-B

SECTION A-A

DETAIL "B"
HEADWALL
N.T.S.



DETAIL "D"
HEADWALL
N.T.S.

AREA DRAIN CALCULATIONS

Q₁₀₀ TO AREA DRAINS
LAND TREATMENT B = 0.043 AC.
LAND TREATMENT D = 0.069 AC.
Q₁₀₀ = (0.043) (2.03) + (0.069) (4.37) = 0.39 CFS

CHECK INLET CAPACITY
MAXIMUM DESIRABLE HEAD = 0.3'
GRATE OPENING = 62 IN² PER MANUFACTURER
2 INLETS PROVIDE 62 X 2 = 124 IN² OPENING
2 INLETS PROVIDE 8 LF OF GRATE PERIMETER

CHECK PER ORIFICE EQUATION
 $Q = CA \sqrt{2GH}$ C = 0.60
 $Q = 0.60 \left(\frac{124}{144} \right) \sqrt{64.4 (0.3)} = 2.27 \text{ CFS}$

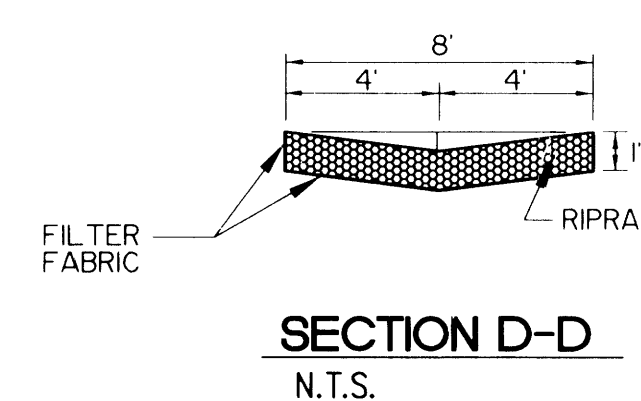
CHECK PER WEIR EQUATION
 $Q = CLH^{3/2}$ C = 2.8
 $Q = 2.8 (8) (0.3)^{3/2} = 3.68 \text{ CFS}$
ORIFICE FLOW CONTROLS → CAPACITY = 2.3 CFS
Q₁₀₀ REQUIRED (0.39 CFS) < INLET CAPACITY (2.3 CFS)
12" INLETS CHOSEN TO PROVIDE MAINTAINABLE SILT TRAPS

CHECK 8" DRAIN LINE CAPACITY
CROSS SECTION AREA = 0.35 SF
SLOPE = 0.01 FT/FT
MIN. H = 0.9

CHECK PER ORIFICE EQUATION
 $Q = 0.60 (0.35) \sqrt{64.4 (0.9)} = 1.6 \text{ CFS}$
CHECK PER MANNINGS EQUATION
 $Q = \frac{1.486}{0.013} (0.35) (0.17^{4/3}) (0.01^{1/3}) = 1.2 \text{ CFS}$
Q₁₀₀ REQUIRED (0.39 CFS) < PIPE CAPACITY (1.2 CFS)

LEGEND

- PROPOSED CONTOUR -88-
- EXISTING CONTOUR 86
- PROPOSED SPOT ELEVATION 91.1



SECTION D-D
N.T.S.

CERTIFICATION FOR CERTIFICATE OF OCCUPANCY
I HEREBY CERTIFY THAT I HAVE INSPECTED THE SITE GRADING AND DRAINAGE IMPROVEMENTS AND THAT THEY HAVE BEEN CONSTRUCTED AND ARE EXPECTED TO FUNCTION IN SUBSTANTIAL ACCORDANCE WITH THE INTENT OF THE APPROVED GRADING AND DRAINAGE PLAN. THE AS-CONSTRUCTED INFORMATION SHOWN ON THIS PLAN WAS PROVIDED BY OTHERS. PROPOSED CONTOURS HAVE NOT BEEN REVISED TO REFLECT AS-CONSTRUCTED ELEVATIONS AND SHOULD BE CONSIDERED APPROXIMATE.

Charles M. Easterling, P.E. Date:
N.M.P.E. No. 6411

NO.		REVISIONS		BY	DATE
PARADISE HILLS UNITED METHODIST CHURCH GRADING AND DRAINAGE PLAN					
EASTERLING & ASSOCIATES, INC. CONSULTING ENGINEERS 10131 Coors Rd., NW, Suite H-718 ALBUQUERQUE, NEW MEXICO 87114 (505) 898-8021 FAX (505) 898-8501					
DESIGNED BY: VSF	DRAWN BY: VSF	CHECKED BY: CME	SHEET 4		
JOB NO. 3730		DATE: 5/94			