GENERAL

1. THE LOCATIONS OF UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF THE EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCASSIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
2. ALL WATER, SEWER AND SERVICES LINES SHALL BE INSTALLED, COMPLETE, PRIOR TO CURB, GUTTER AND SIDEWALK CONSTRUCTION.
3. CONTRACTOR SHALL OBTAIN CONSTRUCTION PERMIT FROM ADA COUNTY HIGHWAY DISTRICT (ACHD) 24 HOURS BEFORE COMMENCING CONSTRUCTION. NO CONSTRUCTION SHALL BEGIN BEFORE PRECONSTRUCTION MEETING IS HELD ACCORDING TO THE "CONSTRUCTION QUALITY ASSURANCE MANUAL". THE CONTRACTOR IS REQUIRED TO ATTEND THE PRECONSTRUCTION MEETING.
4. NO PAVING SHALL OCCUR UNTIL THE CONTRACTOR OBTAINS WRITTEN APPROVAL OF ALL INSTALLED WATER, SEWER AND PRESSURE IRRIGATION FACILITIES FROM THE CITY OF KUNA.
5. ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC).
6. THE STREET CONTRACTOR SHALL CLEAN UP AND FINE GRADE THE ENTIRE SUBDIVISION AT THE COMPLETION OF THE PROJECT.
7. LOCATION AND MATERIALS FOR NON-POTABLE WATER LINES (SEWER, STORM DRAIN, IRRIGATION, PRESSURE IRRIGATION, ETC.) CROSSING WATER MAINS SHALL CONFORM TO SECTION 550.06.f OF THE IDAHO DRINKING WATER STANDAARDS. SEE SANITARY SEWER NOTE 18, WHICH APPLIES TO ALL NON-POTABLE LINES.

STREETS

1. ALL WORK SHALL BE CONSTRUCTED TO THE ACHD SPECIFICATIONS.
2. STANDARD SEWER AND STORM DRAIN MANHOLES, CONES AND STRUCTURES SHALL BE SET TO SPECIFIED ELEVATION BY THEIR RESPECTIVE CONTRACTORS. ALL REMAINING MANHOLE MATERIALS, EXCEPT CONCRETE COLLARS, NECESSARY TO CONSTRUCT MANHOLE TO FINISHED GRADE IN PAVEMENT AREAS SHALL BE FURNISHED BY THE PIPE CONTRACTORS FOR PLACEMENT AT FINISHED GRADE BY STREET CONTRACTOR. FOR MANHOLES NOT WITHIN PAVEMENT AREAS, THE MANHOLE RINGS SHALL BE SET TO FINISHED GRADE BY THEIR RESPECTIVE CONTRACTORS. ALL MATERIALS FOR CONCRETE COLARS AROUND SANITARY SEWER AND STORM DRAIN MANHOLE RINGS SHALL BE SUPPLIED AND CONSTRUCTED TO FINISHED GRADE BY STREET CONTRACTOR IN ACCORDANCE WITH ISPWC SPECIFICATIONS.
3. ALL WORK WILL BE INSPECTED BY THE ACHD IN THE PUBLIC RIGHT-OF-WAY AND BY THE DEVELOPER'S ENGINEER IN PRIVATE DRIVE IN ACCORDANCE WITH THE LATEST EDITION OF THE "CONSTRUCTION QUALITY ASSURANCE MANUAL".
4. STORM DRAIN PIPE IN STREETS SHALL UTILIZE TYPE I BEDDING MATERIAL, PLACED IN 6" LAYERS AS PER ACHD TYPICAL TRENCH DETAIL, DRAWING NO. SD-301.
5. CONCRETE CONTRACTOR SHALL CALL J. J. HOWARD ENGINEERING AT LEAST 24 HOURS IN ADVANCE FOR STRING LINE INSPECTION PRIOR TO POURING ANY CONCRETE. THIS INSPECTION BY J.J. HOWARD EGINEERING DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF COMPLYING WITH THE INTENT OF THE PLANS AND SPECIFICATIONS.

WATER DISTRIBUTION

1. ALL WATER LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "IDAHO RULES FOR PUBLIC DRINKING WATER SYSTEMS, MARCH, 1995 (IDAPA 16.01.08). THE LATEST EDITION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION, UNIFORM PLUMBING CODE, AND LAWS OF THE STATE OF IDAHO.
2. CONTRACTOR SHALL NOTIFY KUNA CITY AND THE DEVELOPER'S ENGINEER 72 HOURS BEFORE CONSTRUCTION BEGINS. THE KUNA CITY AND THE DEVELOPER'S ENGINEER SHALL BE ALLOWED TO INSPECT WATER LINES BEFORE BACKFILLING.
3. TRENCH BACKFILL ABOVE THE PIPE ZONE WILL BE INSPECTED BY THE ADA COUNTY HIGHWAY DISTRICT AND SHALL MEET THEIR MATERIAL AND COMPACTION REQUIREMENTS.
4. ALL WATER MAINS SHALL BE POLY-VINYL-CHLORIDE (PVC) CONFORMING TO THE PROVISIONS OF AWWA C-900 CLASS 150, SDR 18, OR CLASS 150 CEMENT MORTAR LINED DUCTILE IRON CONFORMING TO AWWA C-104 AND AWWA C-151. ALL FITTINGS SHALL BE MECHANICAL JOINT DUCTILE IRON FITTINGS CONFORMING TO AWWA C-110. ALL PLASTIC PIPE SHALL BE INSTALLED WITH #12 DIRECT BURIAL TRACER WIRE PLACED ALONG THE NORTH AND EAST SIDE OF THE MAIN. THE TRACER WIRE SHALL BE ACCESSIBLE AT ALL VALVE BOXES AND SHALL BE EXTENDED ALONG THE OUTSIDE OF THE LOWER PORTION OF THE VALVE BOX AND ALONG THE INSIDE OF THE UPPER PORTION. MINIMUM BURIAL DEPTH FOR ALL WATER MAINS SHALL BE 4 FEET FROM FINISHED GRADE TO THE TOP OF PIPE.
5. ALL MAIN LINE WATER VALVE SHALL BE RESILIENT-SEATED GATE VALVES CONFORMING TO AWWA C-509. ALL WATER VALVES SHALL BE FURNISHED WITH A STANDARD CAST IRON 5-1/4 INCH DIAMETER ADJUSTABLE VALVE BOX. THE CAST IRON COVER SHALL BE MARKED WITH THE WORD "WATER" AS AN INTEGRAL PART OF THE COVER.
6. ALL FIRE HYDRANTS SHALL BE DRY BARREL FIRE HYDRANTS CONFORMING TO AWWA C-502. HYDRANTS SHALL HAVE A 5-FOOT SETTINGS; MINIMUM 5-1/4 INCH VALVE OPENING; 150 PSI WORKING PRESSURE; ONE 4-1/2 INCH DIAMETER NATIONAL STANDARD PUMPER NOZZLE; AND TWO 2-1/2 INCH DIAMETER NATIONAL STANDARD THREAD FIRE HOSE NOZZLES. THE VALVE OPERATOR SHALL OPEN LEFT (COUNTER-CLOCKWISE). THE HYDRANT SHALL BE EQUIPPED WITH A BREAKABLE TRAFFIC FLANGE JUST ABOVE-GROUND LEVEL; A DRAIN THAT AUTOMATICALLY OPENS WHEN THE HYDRANT IS CLOSED; AND A 6-INCH FLANGED CONNECTION. THE HYDRANT SHALL BE EQUIPPED WITH A 6-INCH FLANGED BY MECHANICAL JOINT RESILIENT-SEAT GATE VALVE WITH CAST IRON VALVE BOX ATTACHED DIRECTLY TO THE MAIN LINE TEE. FIRE HYDRANTS SHALL BE INSTALLED SUCH THAT THE BREAKABLE TRAFFIC FLANGE IS SET 2-INCHES MINIMUM, 6-INCHES MAXIMUM ABOVE THE BACK OF SIDEWALK OR FINISH GRADE, AS APPLICABLE. HYDRANT SPACING SHALL BE 450' MAXIMUM. FIRE HYDRANTS SHALL BE A CLOW MEDALLION HYDRANT OR WATEROUS PACER 100 HYDRANT. NO OTHERS WILL BE ACCEPTED.
7. INDIVIDUAL WATER SERVICES SHALL BE INSTALLED FOR EACH CONNECTION. THE WATER SERVICE SHALL CONSIST OF A PIPE SADDLE WITH 1-INCH CORPORATION STOP; 1-INCH CLASS 200, SDR 7.3 POLYETHYLENE PIPE CONFORMING TO AWWA C-901; 18-INCH TALL 5/8"x3/4" COPPER METER SETTER WITH LOCKABLE SHUTOFF VALVE; CHECK VALVE; AND 18-INCH DIAMETER BY 30-INCH TALL INSULATED METER BOX AS MANUFACTURED BY "MID-STATES PLASTICS, INC.", OR APPROVED EQUAL; AND A CAST IRON FRAME AND COVER TAPPED WITH A 1-INCH DIAMETER HOLE FOR THE CITY AUTOREAD METER SENSOR; APPROVED BY THE CITY. THE ONE-INCH WATER SERVICE SHALL BE EXTENDED A MINIMUM OF 10 FEET ON THE HOUSE SIDE OF THE METER, OR AS REQUIRED TO EXTEND PAST THE OTHER UTILITIES LOCATED IN THE 10 FOOT EASEMENT. WATER METERS SHALL BE FURNISHED AND INSTALLED BY THE CITY.
8. MULTIPLE TAPS IN THE SAME PIPE JOINT SHALL BE STAGGERED AND SHALL BE SEPARATED BY A MINIMUM OF ONE FOOT. THE CENTERLINE OF THE METER SETTER SHALL BE LOCATED 18-INCHES BELOW FINISH GRADE. METER SHALL BE PLACED 18 INCHES INSIDE THE PROPERTY LINE OR ACHD EASEMENT, OR A MINIMUM OF 18 INCHES BEHIND MAILBOX CLUSTERS AND 18 INCHES AWAY FROM THE SIDE LOT LINE. DUAL SERVICES OFF ONE SERVICE LINE WILL NOT BE ALLOWED.
9. ALL INSTALLED WATER LINES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH SECTION 404 OF THE ISPWC SPECIFICATIONS FOLLOWING INSTALLATION OF ALL UTILITIES AND PRIOR TO PAVING. THE TESTING MUST BE OBSERVED BY A REPRESENTATIVE OF THE CITY. ALL INSTALLED WATER LINES SHALL BE DISINFECTED IN ACCORDANCE WITH SECTION 405 OF THE ISPWC SPECIFICATIONS AND SATISFACTORILY PASS A BACTERIALOGICAL TEST CONDUCTED BY THE CITY PRIOR TO BEING PUT INTO SERVICE.
10. ALL PIPE, MAINS AND SERVICES, SHALL BE BEDDED WITH TYPE I BEDDING. IN AREAS OF ROCK EXCAVATION BEDDING SHALL BE 6-INCHES BELOW THE PIPE.
11. IN AREAS WHERE ROCK EXCAVATION IS REQUIRD , ALL BLASTING FOR OTHER UTILITIES SHALL OCCUR PRIOR TO INSTALLATION OF ANY SEWER MAINS, WATER MAINS OR SERVICE LINE CROSSINGS.
12. ALL TEES, PLUGS, CAPS AND BENDS OF 22 1/2 AND AT OTHER LOCATIONS WHERE UNBALANCED FORCES WILL EXIST SHALL BE SECURE AND ANCHORED BY SUITABLE THRUST BLOCKING.
13. WHEN CONSTRUCTION IS SATISFACTORILY COMPLETED, CLEANED AND TESTED THE CONTRACTOR SHALL REQUEST A FINAL ACCEPTANCE INSPECTION BY THE CITY. THE FINAL ACCEPTANCE INSPECTION SHALL OCCUR AFTER ALL OTHER UTILITIES ARE INSTALLED. AT A MINIMUM, THE FINAL ACCEPTANCE INSPECTION SHALL CONSISIT OF WITNESSING A FINAL WATER PRESSURE TEST CONDUCTED BY THE CONTRACTOR.
14. THE CITY HAS THE RIGHT TO INSPECT THE WORK AT ANY TIME DURING CONSTRUCTION. ANY WORK THAT DOES NOT CONFORM TO THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REJECTED.
15. THE DEVELOPER SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FOLLOWING ACCEPTANCE BY THE CITY.

PRESSURE IRRIGATION FACILITIES

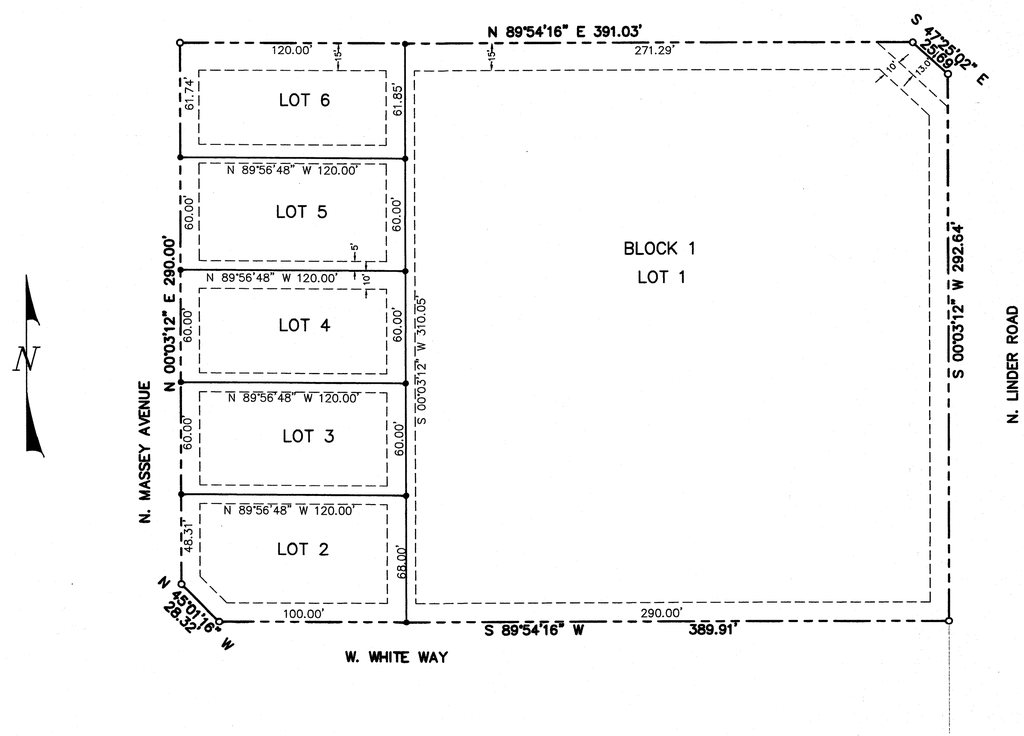
1. PRESSURE IRRIGATION MAIN LINE PIPING SHALL BE CONSTRUCTED OF POLY-VINYL-CHLORIDE (PVC), 200 PSI, SDR 21, CONFORMING TO ASTM D-2241 FOR PIPES 3" AND LARGER, AND SCHEDULE 40, CONFORMING TO ASTM D-2466 FOR PIPES 2.5" AND SMALLER FOR PRESSURE IRRIGATION. ALL JOINTS ON PIPE 3" AND LARGER SHALL BE RUBBER GASKETED. ALL PLASTIC PIPE SHALL BE INSTALLED WITH A #12 DIRECT BURIAL TRACER WIRE PLACED ALONG THE NORTH AND EAST SIDE OF THE MAIN. THE TRACER WIRE SHALL BE ACCESSIBLE AT ALL VALVE BOXES AND SHALL BE EXTENDED ALONG THE OUTSIDE OF THE LOWER PORTION OF THE VALVE BOX AND ALONG THE INSIDE OF THE UPPER PORTION. MINIMUM BURIAL DEPTH FOR ALL IRRIGATION MAINS SHALL BE 2'-6" FROM FINISH GRADE TO THE TOP OF PIPE IF THE PIPE IS FREE-DRAINING, EXCEPT WITHIN ROADWAYS. UNDER ROADWAYS OR IN AREAS WHERE THE PIPE IS NOT FREE-DRAINING, A MINIMUM OF 3-1/2 FEET OF COVER SHALL BE REQUIRED FROM FINISH GRADE.
2. ALL PIPE SHALL BE CLEARLY MARKED WITH TYPE, CLASS AND/OR THICKNESS AS APPLICABLE. LETTERING SHALL BE LEGIBLE AND PERMANENT UNDER NORMAL CONDITIONS OR HANDLING AND STORAGE.
3. ALL FITTINGS SHALL BE CAST IRON, DUCTILE IRON, PVC, BRASS OR STAINLESS STEEL, AND SHALL HAVE A MINIMUM PSI PRESSURE RATING EQUAL TO OR GREATER THAN THE MAIN LINE PRESSURE RATING. ALL FITTINGS 4-INCHES AND LARGER SHALL BE DUCTILE IRON WITH FLANGED OR MECHANICAL JOINTS.
4. VALVES FOR SIZES UP TO 3-INCHES SHALL BE RISING STEM, SOLID DOUBLE WEDGE DISC, SCREW BONNET, WITH HAND WHEELS. THE VALVE BODY, BONNET, DISC AND STEM SHALL BE BRONZE. VALVE BOXES FOR SIZES UP TO 3-INCHES SHALL BE 4-INCH DIAMETER PVC OR ABS PIPE WITH A FEMALE ADAPTER, AND THREADED PLUG WITH SQUARE NUT. VALVES 3-INCH AND LARGER SHALL BE RESILIENT WEDGE VALVES CONFORMING TO THE REQUIREMENTS OF AWWA C-509, WITH MECHANICAL OR FLANGED JOINTS AND 2-INCH SQUARE OPERATION NUT. VALVE BOXES FOR VALVES 3-INCH AND LARGER SHALL BE A STANDARD CAST IRON 5-1/4 INCH DIAMETER ADJUSTABLE VALVE BOX.
5. ALL IRRIGATION PIPE SHALL BE INSTALLED WITH FINDER TAPE. TAPE SHALL BE 2 INCHES WIDE, METALLIC RED IN COLOR, WITH THE WORDS **"DANGER UNSAFE WATER"** OR **"NON-POTABLE WATER"** CLEARLY MARKED ALONG THE LENGTH OF THE TAPE. TAPE SHALL BE PLACED BETWEEN 6 INCHES BELOW THE SURFACE AND 18 INCHES ABOVE THE TOP OF THE PIPE.
6. ALL IRRIGATION SYSTEM CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC), UNIFORM PLUMBING CODE, AND LAWS OF THE STATE OF IDAHO.
7. INDIVIDUAL IRRIGATION SERVICES SHALL BE INSTALLED FOR EACH LOT AS OUTLINED ABOVE. THE IRRIGATION SERVICE SHALL CONFORM TO CITY OF KUNA STANDARD DRAWING IRRIG-02. EACH SERVICE SHALL BE EQUIPPED WITH A METAL TAG WITH **"NON-POTABLE WATER, DO NOT DRINK"**.
8. ALL IRRIGATION MAINS SHALL BE DESIGNED TO FREELY DRAIN AT THE END OF THE IRRIGATION SEASON. THE DRAIN SYSTEM SHALL BE MANUALLY OPERATED DRAINAGE FACILITIES AS SHOWN ON THE CITY OF KUNA STANDARD DRAWING IRRIG-03.

PRESSURE IRRIGATION FACILITIES (CONT.)

9. ALL INSTALLED IRRIGATION DRY LINES SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH SECTION 404 OF THE ISPWC SPECIFICATIONS FOLLOWING INSTALLATION OF ALL UTILITIES AND PRIOR TO PAVING. MINIMUM TEST PRESSURE SHALL BE 90 PSI. TEST WATER SHALL BE POTABLE WATER FROM THE MUNICIPAL WATER SYSTEM. THE TESTING MUST BE OBSERVED BY A REPRESENTATIVE OF THE CITY. UPON SUCCESSFULLY PASSING THE FINAL PRESSURE TEST THE IRRIGATION SYSTEM DHALL BE DRAIDE.
10. ALL PIPE, MAINS AND SERVICES, SHALL BE BEDDED WITH TYPE I BEDDING. IN AREAS OF ROCK EXCAVATION BEDDING SHALL BE 6-INCHES BELOW THE PIPE.
11. IN AREAS WHERE ROCK EXCAVATION IS REQUIRED, ALL BLASTING FOR OTHER UTILITIES SHALL OCCUR PRIOR TO INSTALLATION OF ANY IRRIGATION FACILITIES.
12. THE OWNER'S ENGINEER SHALL PERFORM INSPECTION DURING CONSTRUCTION.
13. ANY MODIFICATIONS DURING CONSTRUCTION MUST BE APPROVED IN WRITING BY THE CITY.
14. WHEN CONSTRUCTION IS SATISFACTORILY COMPLETED, CLEANED AND TESTED THE CONTRACTOR SHALL REQUEST A FINAL ACCEPTANCE INSPECTION BY THE CITY. THE FINAL ACCEPTANCE INSPECTION SHALL OCCUR AFTER ALL OTHER UTILITIES ARE INSTALLED. AT A MINIMUM, THE FINAL ACCEPTANCE INSPECTION SHALL CONSIST OF WITNESSING A FINAL PRESSURE TEST CONDUCTED BY THE CONTRACTOR.
15. THE CITY HAS THE RIGHT TO INSPECT THE WORK AT ANY TIME DURING CONSTRUCTION. ANY WORK THAT DOES NOT CONFORM TO THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REJECTED.
16. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FOLLOWING ACCEPTANCE BY THE CITY.

SANITARY SEWER

1. PRIOR TO CONSTRUCTION, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INFORM ALL THE UTILITY COMPANIES OF THE CONSTRUCTION SCHEDULE.
2. ALL UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.
3. ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.
4. MANHOLE RIM ELEVATIONS AS SHOWN ON THE CONSTRUCTION DRAWINGS ARE APPROXIMATE. THE MANHOLE FRAMES AND COVERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACHD'S REVISION TO THE I.S.P.W.C. STANDARD DRAWING NO. HD 508. RIM ELEVATIONS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD DURING CONSTRUCTION.
5. CONTRACTOR SHALL REPAVE ANY EXISTING PAVED STREETS DISTURBED DURING CONSTRUCTION.
6. RETAIN AND PROTECT ALL IRRIGATION AND DRAINAGE PIPE CROSSINS. THE CONTRACTOR SHALL COORDINATE WITH THE WNER AND THE ACHD FOR THE INSPECTION OF THE EXPOSED IRRIGATION AND.OR DRAINAGE PIPE CROSSINGS. IF EXISTING PIPES ARE DAMAGED, THE AFFECTED PIPE WILL BE REPLACED BY THE CONTRACTOR.
7. RETAIN AND PROTECT WATER METER VAULTS. IF THE VAULTS ARE DISTURBED, THE CONTRACTOR SHALL CONTACT THE APPROPRIATE WATER COMPANY FOR REPLACEMENT.
8. RETAIN AND PROTECT EXISTING CURB, GUTTER AND SIDEWALK. IF REMOVAL IS NECESSARY, REPLACEMENT SHALL BE INCIDENTAL TO PROJECT.
9. THE FOLLOWING TYPE AND CLASS OF PIPE WILL BE PERMITTED. PIPE SHALL CONFORM TO A.S.T.M. D 3034 PVC, SDR 35.
10. ALL WORK SHALL BE CONSTRUCTED TO I.S.P.W.C. STANDARDS, UNIFORM PLUMBING CODE, LAWS OF THE STATE OF IDAHO AND SHALL BE APPROVED BY KUNA CITY.
11. THE SEWER CONTRACTOR SHALL OBTAIN A STREET EXCAVATION PERMIT.
12. SEWER MANHOLES SHALL BE TYPE "A".
13. SANITARY SEWER MANHOLES SHALL BE COONSTRUCTED OF REINFORCED PRECAST CONCRETE 4' DIAMETER AND STRENGTH REQUIREMENTS SHALL CONFORM TO A.S.T.M. C-478 SPECIFICATIONS.
14. AN ECCENTRIC CONE SHALL BE PLACED ON SANITARY SEWER MANHOLES GREATER THAN 4 FEET DEEP, WITH THE VERTICAL WALL PLACED ON THE UPSTREAM SIDE AND ROTATED 45°. MANHOLES LESS THAN 4 FEET DEEP SHALL HAVE CONCENTRIC CONES.
15. SANITARY SEWER MANHOLE CONES SHALL BE SET A MAXIMUM OF ONE (1) FOOT BELOW SPECIFIED RING ELEVATIONS BY SEWER CONTRACTOR. ALL REMAINING MANHOLE MATERIALS, OTHER THAN CONCRETE COLLARS NECESSARY TO CONSTRUCT MANHOLE TO FINISHED GRADE, SHALL BE FURNISHED BY THE SEWER CONTRACTOR FOR PLACEMENT AT FINISHED GRADE BY STREET PAVING CINTRACTOR, ALL MATERIALS FOR CONCRETE AROUND MANHOLE RINGS SHALL BE SUPPLIED AND CONSTRUCTED TO FINISHED GRADE BY STREET CONTRACTOR. THE CITY OF KUNA SHALL BE CONTACTED 24 HOURS PRIOR TO PLACING CONCRETE COLARS.
16. THE TRENCH BACKFILL ABOVE THE PIPE ZONE WILL BE INSPECTED BY THE ACHD OR THE OWNER'S ENGINEER IN ACCORDANCE WITH THE LATEST EDITION OF THE "CONSTRUCTION QUALITY ASSURANCE MANUAL".
17. WHERE PVC IS UTILIZED, A RUBBER RING OR APPROVED EQUIVALENT IS TO BE INSTALLED WHERE THE PIPE CONTACT WITH MANHOLE BASE AND/OR MANHOLE CHANNEL IN ORDER TO INSURE A WATERTIGHT SEAL.
18. WHERE IT IS NECESSARY FOR SEWER AND WATER TO CROSS EACH OTHER AND THE SEWER LINE IS ABOVE OR LESS THAN 18 INCHES BELOW THE WATER MAIN, THE SEWER LINE CROSSING SHALL BE IN ACCORDANCE WITH SECTION 550.06f OF THE IDAHO PUBLIC DRINKING WATER STANDARDS. ONE FULL LENGTH OF BOTH WATER MAIN AND SEWER LINE SHALL BE CENTERED OVER THE CROSSING POINT SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.
19. ALL SEWER SERVICE LINES SHALL BE INSTALLED TO THE DESIGN ELEVATIONS SHOWN ON THE PLANS. THE CONTRACTOR SHALL USE 4" DIAMETER PVC PIPE OR APPROVED EQUIVALENT FOR ALL SERVICE LINES. ALL SEWER SERVICE LINES SHALL BE CONSTRUCTED AT A MINIMUM GRADE OF 1%.
20. SEWER SERVICE LINES SHALL BE CONSTRUCTED TO A POINT 5'-10' INSIDE THE BACK OF PROPERTY LINE AS SHOWN. EXCEPT WHERE OTHERWISE INDICATED, THE SEWER SERVICE LINES SHALL BE CONSTRUCTED TO THE MIDPOINT OF THE FRONT LOT LINES. A 2"x4" MARKER WITH GALVANIZED FINDER WIRE SHALL EXTEND FROM THE END OF EACH SERVICE LINE TO THE FINISHED GROUND SURFACE DIRECTLY ABOVE AND MUST BE PRESENT FOR FINAL INSPECTION (SEE DETAIL). AN ALTERNATE TO GALVANIZED FINDER WIRE MAY BE USED SUBJECT TO CITY APPROVAL PRIOR TO INSTALLATION.
21. KUNA CITY AND THE DEVELOPER'S ENGINEER WILL PROVIDE PERIODIC INSPECTION FROM 8:00 AM TO 5:00 PM DURING A FIVE-DAY WORK-WEEK. THE CONTRACTOR SHALL REIMBURSE THE CITY AND ENGINEER AT RATES IN EXCESS OF THE NORMAL WORK WEEK, INCLUDING LEGAL HOLIDAYS. OVERTIME RATES AND A LIST OF LEGAL HOLIDAYS CAN BE OBTAINED FROM THE CITY OF KUNA.
22. THE HORIZONTAL SEPARATION OF THE WATER AND SEWER MAINS SHALL BE A MINIMUM OF TEN (10) FEET.
23. CONTRACTOR SHALL NOTIFY KUNA CITY AND THE DEVELOPER'S ENGINEER 48 HOURS IN ADVANCE OF CONSTRUCTION.
24. WATER LEVELS SHALL BE MAINTAINED BELOW THE TRENCH BOTTOM DURING THE PIPE LAYING AND JOINING OPERATION. THE DEWATERING METHOD SHALL BE DISCUSSED WITH THE ENGINEER AND APPROVED PRIOR TO CONSTRUCTION. DITCHES AND STORM DRAIN FACILITIES THAT ARE SILTED UP DUE TO THE CONTRACTOR'S DEWATERING SHALL BE CLEANED AND RESTORED TO THEIR ORIGINAL STATE.
25. CONTRACTOR SHALL LOCATE AND PROTECT ALL UNDERGROUND UTILITIES DURING CONSTRUCTION.
26. THE DEVELOPER'S ENGINEER WILL TEST THE COMPACTION OF THE SEWER PIPELINE BEDDING. TESTING WILL BE DONE BY AN OUTSIDE TESTING LABORATORY. THE COST OF THIS SERVICE SHALL BE PAID BY THE DEVELOPER. HOWEVER, IF THE TEST FAILS, THE COST OF THE TEST AND ANY RETESTING SHALL BE PAID BY CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE DEVELOPER'S ENGINEER AND THE TESTING LABORATORY TO SCHEDULE THE TESTS, HIS BACKFILLING, AND PIPE LAYING OPERATION.
27. AFTER ALL UTILITIES ARE CONSTRUCTED AND JUST PRIOR TO PAVING, THE CONTRACTOR SHALL PERFORM AN AIR TEST ON THE SEWER SYSTEM IN ACCORDANCE WITH SECTION 506 OF THE ISPWC SPECIFICATIONS. A KUNA CITY REPRESENTATIVE SHALL BE PRESENT TO WITNESS THE TEST. THE CONTRACTOR SHALL CONTACT KUNA CITY 24 HOURS PRIOR TO TESTING. DEFLECTION TESTS AND/OR TELEVISION INSPECTION MAY BE REQUIRED AT THE OPTION OF THE CITY.
28. WHERE SEWER TAP CONNECTS TO EXISTING MAIN (PVC), HOLE SHALL BE CUT WITH A HOLE SAW. THE CONTRACTOR MAY USE A SADDLE OR "INSTA-TEE" TO MAKE TAP. A KUNA CITY INSPECTOR MUST BE PRESENT TO WITNESS THE SEWER TAP.
29. THE CONTRACTOR SHALL LEAVE THE EXCAVATION FOR THE UPSTREAM END OF ALL SERVICE LINES OPEN FOR FIELD VERIFICATION OF THE INVERT ELEVATION BY THE ENGINEER'S INSPECTOR. THE CONTRACTOR SHALL NOT BACKFILL THE ENDS OF SERVICE LINES UNTIL HE HAS OBTAINED APPROVAL FROM THE CITY OF KUNA INSPECTOR OR MADE OTHER ARRANGEMENTS FOR VERIFICATION OF SERVICE LINE INVERT ELEVATIONS.
30. WHEN CONSTRUCTION IS SATISFACTORILY COMPLETED, CLEANED AND TESTED, THE CONTRACTOR SHALL REQUEST A FINAL ACCEPTANCE INSPECTION BY THE CITY. THE FINAL ACCEPTANCE INSPECTION SHALL OCCUR AFTER ALL UTILITIES ARE INSTALLED. AT A MINIMUM, THE FINAL ACCPETANCE INSPECTION SHALL CONSIST OF LAMPING ALL SEWER MAINS, VISUALLY INSPECTING EACH MANHOLE AND WITNESSING A FINAL SEWER AIR TEST CONDUCTED BY THE CONTRACTOR.
31. THE CITY HAS THE RIGHT TO INSPECT THE WORK AT ANY TIME DURING CONSTRUCTION. ANY WORK THAT DOES NOT CONFORM TO THE APPROVED PLANS AND SPECIFICATIONS SHALL BE REJECTED.
32. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR FOLLOWING ACCEPTANCE BY THE CITY.
33. ALL PIPES, MAINS AND SERVICES SHALL BE BEDDED WITH TYPE I BEDDING. IN AREAS OF ROCK EXCAVATION BEDDING SHALL BE 6-INCHES BELOW THE PIPE.
34. IN AREAS WHERE ROCK EXCAVATION IS REQUIRED, ALL BLASTING FOR OTHER UTILITIES SHALL OCCUR PRIOR TO INSTALLATION OF ANY SEWER MAINS, WATER MAINS OR SERVICE LINE CROSSINGS.
35. THE SEPARATION REQUIREMENTS AS OUTLINED IN SECTION 406, SEPARATION OF WATER MAINS AND SEWERS, OF THE ISPWC SPECIFICATIONS SHALL APPLY TO BOTH MAINLINES AND SERVICE LINES. WHERE SEWER MAINS AND SERVICES THAT DO NOT CONFORM TO THE SEPARATION REQUIREMENTS, WATER CLASS PIPE IS REQUIRED.



LEGEND

- PROPERTY BOUNDARY
- PUBLIC UTILITIES, IRRIGATION AND DRAINAGE EASEMENT
- LOT LINE
- ○ FOUND 1/2" PIN REPLACED WITH 5/8" X 30" IRON PIN W/CAP
- ● SET 1/2"X24" IRON PIN W/CAP

PROFESSIONAL ENGINEER - LAND SURVEYOR REGISTERED 2471 STATE OF IDAHO JAMES J. HOWARD 6/16/03

J.J. Howard

POLARIS SUBDIVISION

COVER SHEET

J.J. HOWARD
ENGINEERING / SURVEYING
1675-A HILL ROAD / BOISE, IDAHO 83702 1-208-344-0574

DATE:	DESIGN BY:	SHEET:	OF
5/19/03		1	2
SCALE: NONE	DRAWN BY: JAP	DRAWING NO.	

CAD DWG: 2002/Polaris/Cover

GIS 9/12/03

63

6

12

3

5

15' UTILITY EASEMENT

8"W

8"SS

6"W

33' SL
INV = 75.48

LOT 6

LOT 5

LOT 4

LOT 3

LOT 2

24"SD

71'

4"PI

N 00°03'12" E 290.00'

WEST
FARMALL WAY

SC 0+57
13' SL
INV = 76.85

SC 0+62
10' SL
INV = 76.81

4.40'

EXISTING 274 LF 8" SS
CLASS 150 C-900
MAIN LINE @0.4% SLOPE

0+00

REMOVE APPROX. 34 LF 6" SEWER LINE,
REPLACE W/8" CLASS 150 C-900 PIPE
AT 0.40%.

86'

64'

33' SL
76.20

33' SL
INV = 76.45

CONST SEWER MANHOLE AT
EXISTING SEWER INTERSECTION
INV. EAST = 75.37
INV. SOUTH = 74.20
RING ELEV. = 80.50

N. MASSEY AVENUE

SD

EXISTING DRAINAGE SWALE
TO BE REGRADED TO THIS
CONFIGURATION

FUTURE
RESIDENCE
C

DRAINAGE SWALE

LAWN

6"W

FUTURE
RESIDENCE
D

BLOCK 1
LOT 1

EXISTING
ASSISTED
LIVING
RESIDENCE
A

FUTURE
RESIDENCE
B

TRASH

GARAGE

DRAINAGE SWALE

Existing
Water Meter

4"PI

Valve

S 89°54'16" W 389.91'

LOT 1, BLOCK 1, THE FARM SUB. NO.1

EXISTING CURB, GUTTER
AND SIDEWALK

W. WHITE WAY

N. LINDER ROAD

GRAPHIC SCALE

20 0 10 20 40 80

1 inch = 20 ft.

N

LEGEND

- EXISTING FIRE HYDRANT/VALVE
- 4"PI — EXISTING PRESSURE IRRIGATION
- 6"W — EXISTING WATER LINE
- 8"SS — (S) EXISTING SANITARY SEWER/ MANHOLE
- SD — (D) EXISTING STORM DRAIN/MANHOLE
- PROPERTY BOUNDARY
- LOT LINE
- CONST. WATER SERVICE
- EXIST. FENCELINE

PROFESSIONAL ENGINEER - LAND SURVEYOR
REGISTERED
2471
5/19/03
STATE OF IDAHO
JAMES J. HOWARD

POLARIS SUBDIVISION

IMPROVEMENT PLANS

J.J. HOWARD
ENGINEERING / SURVEYING
1675-A HILL ROAD / BOISE, IDAHO 83702 1-208-344-0574

DATE:	DESIGN BY:	SHEET:	OF
5/15/03		2	2
SCALE:	DRAWN BY:	DRAWING NO.	
1" = 20'	JAP		

CAD DWG: N:\2002\POLARIS\Improvementplans.dwg