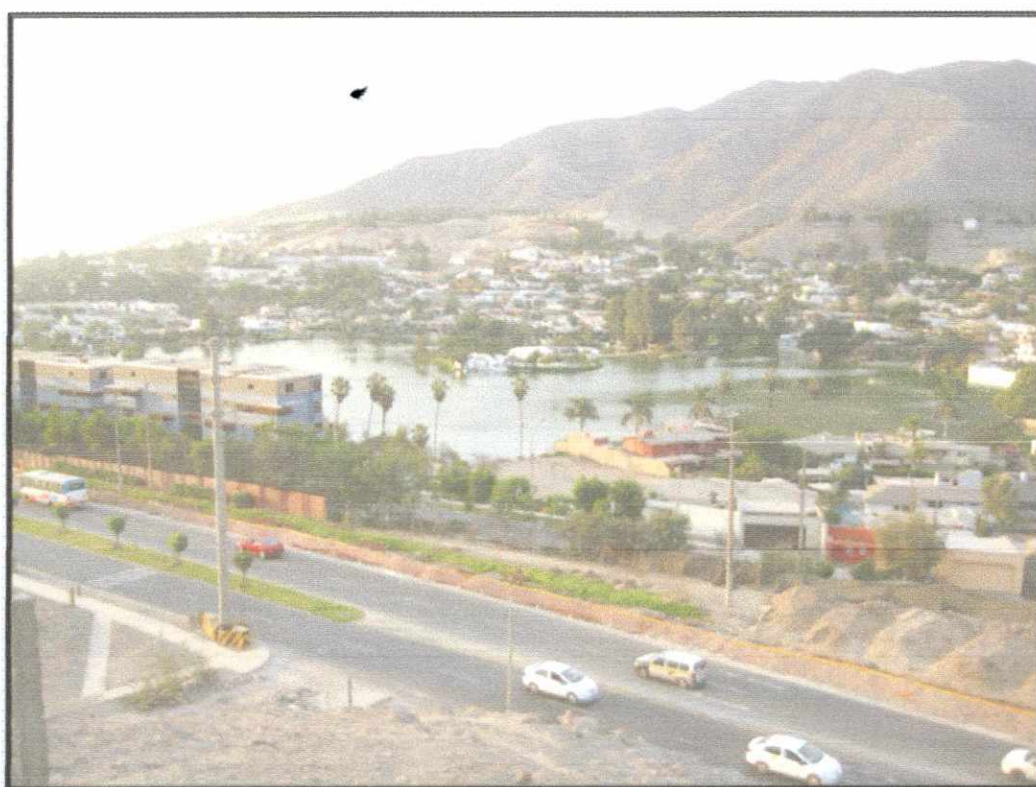




**ESTUDIO DE PREINVERSIÓN A NIVEL DE PERFIL DEL PROYECTO
“MEJORAMIENTO Y REHABILITACIÓN DE LOS SISTEMAS DE
AGUA POTABLE Y ALCANTARILLADO DE LA URB. CLUB
CAMPESTRE LAS LAGUNAS – DISTRITO DE LA MOLINA”**



INFORME N°03

SETIEMBRE del 2015

TOMO V

**CONSORCIO ROMAHS CONSULTORES
S.A.C. – SMRM**



THESE RESULTS ARE DISCUSSION



FLANDRINO, S.

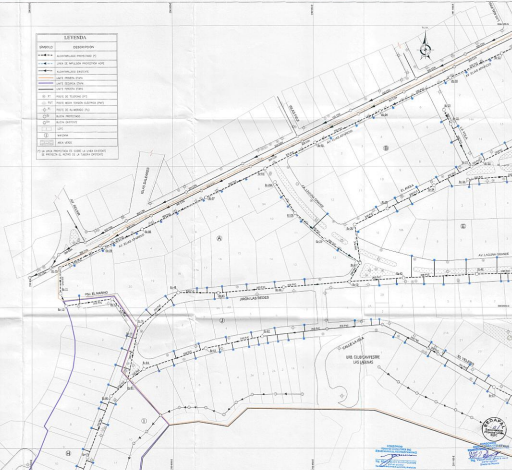
| Structure | Yield | mp (°C) |
|-----------|-------|---------|
| 1 | 81 | 112 |
| 2 | 81 | 112 |
| 3 | 71 | 112 |
| 4 | 71 | 112 |
| 5 | 71 | 112 |
| 6 | 71 | 112 |
| 7 | 71 | 112 |
| 8 | 71 | 112 |
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| 85 | 71 | 112 |
| 86 | 71 | 112 |
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| 88 | 71 | 112 |
| 89 | 71 | 112 |
| 90 | 71 | 112 |
| 91 | 71 | 112 |
| 92 | 71 | 112 |
| 93 | 71 | 112 |
| 94 | 71 | 112 |
| 95 | 71 | 112 |
| 96 | 71 | 112 |
| 97 | 71 | 112 |
| 98 | 71 | 112 |
| 99 | 71 | 112 |
| 100 | 71 | 112 |

| Spectroscopic Measurements | | |
|----------------------------|-----------------|------------------|
| Sample | Wavelength (nm) | Intensity (a.u.) |
| ZnO ETLs | 250 | 0.1 |
| | 275 | 0.2 |
| | 300 | 0.3 |
| | 325 | 0.5 |
| | 350 | 0.8 |
| | 375 | 1.0 |
| Wavelength (nm) | | Intensity (a.u.) |

| THERMAL ANALYSIS DATA SUMMARY | | |
|-------------------------------|---------|-----|
| TEMPERATURE | WT LOSS | DTG |
| 50 | 0 | 0 |
| 100 | 0 | 0 |
| 150 | 0 | 0 |
| 200 | 0 | 0 |
| 250 | 0 | 0 |
| 300 | 0 | 0 |
| 350 | 0 | 0 |
| 400 | 0 | 0 |
| 450 | 0 | 0 |
| 500 | 0 | 0 |
| 550 | 0 | 0 |
| 600 | 0 | 0 |
| 650 | 0 | 0 |
| 700 | 0 | 0 |
| 750 | 0 | 0 |
| 800 | 0 | 0 |
| 850 | 0 | 0 |
| 900 | 0 | 0 |
| 950 | 0 | 0 |
| 1000 | 0 | 0 |

[illegible]

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Journal of Internal Medicine 255: 103–110



| LEYENDA | | |
|---|--|------------------|
| SÍMBOLO | DESCRIPCION | Unidad de Medida |
|  | PERSONAS QUE SE ENCONTRAN EN EL PUESTO | 427 |

[illegible]

5075A



PLANO DE UBICACIÓN



PLANO DE ENSINO

| DEFINITION | | |
|------------|-------------------------|-------------------------|
| VARIABLE | DESCRIPTION | EXPLANATORY VARIABLE |
| 1 | INTERVIEW SUBJECTS' AGE | AGE |

| NOMENCLATURA DE LOS PRODUCTOS ALCANTARALADOS | |
|---|------------------------|
| Modelo | Referencia/Descripción |
| Tubo de 100 unidades de ancho en superficie plana | 100-100-100-100 |
| Tubo de 100 unidades de ancho en superficie plana | 100-100-100-100 |
| Tubo de 100 unidades de ancho en superficie plana | 100-100-100-100 |
| Tubo de 100 unidades de ancho en superficie plana | 100-100-100-100 |
| Tubo de 100 unidades de ancho en superficie plana | 100-100-100-100 |

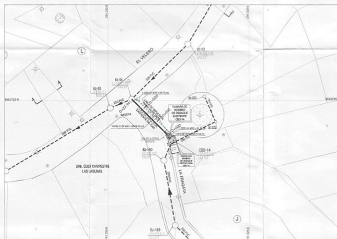
SEEK





PRZYKŁAD 1. LINIA DE DEFUSIÓN PRECIPITADA
DEL 100-100-100-100-100-100

| | 2010-2011 | 2011-2012 | 2012-2013 |
|-----------|-----------|-----------|-----------|
| 2010-2011 | 100 | 100 | 100 |
| 2011-2012 | 100 | 100 | 100 |
| 2012-2013 | 100 | 100 | 100 |
| 2013-2014 | 100 | 100 | 100 |
| 2014-2015 | 100 | 100 | 100 |
| 2015-2016 | 100 | 100 | 100 |
| 2016-2017 | 100 | 100 | 100 |
| 2017-2018 | 100 | 100 | 100 |
| 2018-2019 | 100 | 100 | 100 |
| 2019-2020 | 100 | 100 | 100 |
| 2020-2021 | 100 | 100 | 100 |
| 2021-2022 | 100 | 100 | 100 |
| 2022-2023 | 100 | 100 | 100 |
| 2023-2024 | 100 | 100 | 100 |
| 2024-2025 | 100 | 100 | 100 |
| 2025-2026 | 100 | 100 | 100 |
| 2026-2027 | 100 | 100 | 100 |
| 2027-2028 | 100 | 100 | 100 |
| 2028-2029 | 100 | 100 | 100 |
| 2029-2030 | 100 | 100 | 100 |
| 2030-2031 | 100 | 100 | 100 |
| 2031-2032 | 100 | 100 | 100 |
| 2032-2033 | 100 | 100 | 100 |
| 2033-2034 | 100 | 100 | 100 |
| 2034-2035 | 100 | 100 | 100 |
| 2035-2036 | 100 | 100 | 100 |
| 2036-2037 | 100 | 100 | 100 |
| 2037-2038 | 100 | 100 | 100 |
| 2038-2039 | 100 | 100 | 100 |
| 2039-2040 | 100 | 100 | 100 |
| 2040-2041 | 100 | 100 | 100 |
| 2041-2042 | 100 | 100 | 100 |
| 2042-2043 | 100 | 100 | 100 |
| 2043-2044 | 100 | 100 | 100 |
| 2044-2045 | 100 | 100 | 100 |
| 2045-2046 | 100 | 100 | 100 |
| 2046-2047 | 100 | 100 | 100 |
| 2047-2048 | 100 | 100 | 100 |
| 2048-2049 | 100 | 100 | 100 |
| 2049-2050 | 100 | 100 | 100 |
| 2050-2051 | 100 | 100 | 100 |
| 2051-2052 | 100 | 100 | 100 |
| 2052-2053 | 100 | 100 | 100 |
| 2053-2054 | 100 | 100 | 100 |
| 2054-2055 | 100 | 100 | 100 |
| 2055-2056 | 100 | 100 | 100 |
| 2056-2057 | 100 | 100 | 100 |
| 2057-2058 | 100 | 100 | 100 |
| 2058-2059 | 100 | 100 | 100 |
| 2059-2060 | 100 | 100 | 100 |
| 2060-2061 | 100 | 100 | 100 |
| 2061-2062 | 100 | 100 | 100 |
| 2062-2063 | 100 | 100 | 100 |
| 2063-2064 | 100 | 100 | 100 |
| 2064-2065 | 100 | 100 | 100 |
| 2065-2066 | 100 | 100 | 100 |
| 2066-2067 | 100 | 100 | 100 |
| 2067-2068 | 100 | 100 | 100 |
| 2068-2069 | 100 | 100 | 100 |
| 2069-2070 | 100 | 100 | 100 |
| 2070-2071 | 100 | 100 | 100 |
| 2071-2072 | 100 | 100 | 100 |
| 2072-2073 | 100 | 100 | 100 |
| 2073-2074 | 100 | 100 | 100 |
| 2074-2075 | 100 | 100 | 100 |
| 2075-2076 | 100 | 100 | 100 |
| 2076-2077 | 100 | 100 | 100 |
| 2077-2078 | 100 | 100 | 100 |
| 2078-2079 | 100 | 100 | 100 |
| 2079-2080 | 100 | 100 | 100 |
| 2080-2081 | 100 | 100 | 100 |
| 2081-2082 | 100 | 100 | 100 |
| 2082-2083 | 100 | 100 | 100 |
| 2083-2084 | 100 | 100 | 100 |
| 2084-2085 | 100 | 100 | 100 |
| 2085-2086 | 100 | 100 | 100 |
| 2086-2087 | 100 | 100 | 100 |
| 2087-2088 | 100 | 100 | 100 |
| 2088-2089 | 100 | 100 | 100 |
| 2089-2090 | 100 | 100 | 100 |
| 2090-2091 | 100 | 100 | 100 |
| 2091-2092 | 100 | 100 | 100 |
| | | | |

[illegible]

PLANTA - LINEA DE IMPULSION PROYECTADA.

[illegible]

NOTE
The following is a list of the authors' names and their affiliations. The authors are listed in the order in which they appear in the text.

| DESCRIPCION | CANTIDAD | UNIDAD | CANTIDAD |
|-----------------------|----------|----------------|----------|
| ARMAZON | | | |
| 2000 1/2" 2000 x 2000 | 100 | m ² | 100 |
| 2000 3/4" 2000 x 2000 | 5 | m ² | 5 |
| ARMAZON | | | |
| 2000 1/2" 2000 x 2000 | 100 | m ² | 100 |



solap
SOLAP S.A. de C.V.
SOLAP S.A. de C.V. es una empresa mexicana especializada en el desarrollo de software para la gestión de recursos humanos y financieros. Su software es utilizado por más de 100 empresas en México y en el extranjero.

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GERENCIA DE PREVENCIÓN Y OBRAS

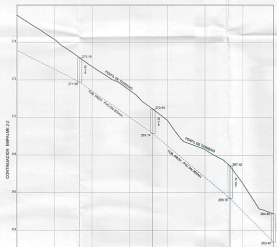
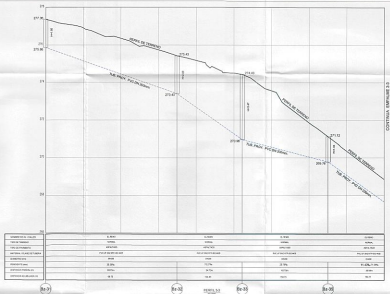
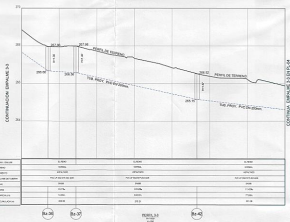
CONSORCIO ROMAHNS CONSULTORES SAC - SUREM
(en asociación)

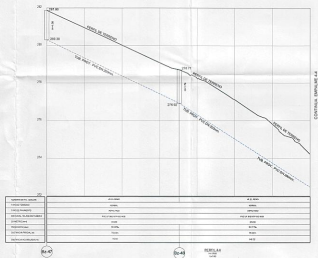
ELABORACIÓN
C.A. ROMAHNS CONSULTORES SAC
CALLE 100 N. # 100, PISO 10, GUAYAMA, P.R. 00961
TEL: 787-762-1111
E-MAIL: ROMAHNS@ROMAHNS.COM
WWW.ROMAHNS.COM

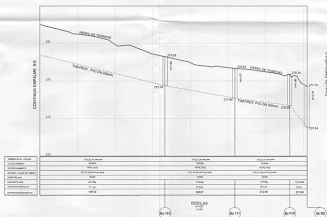
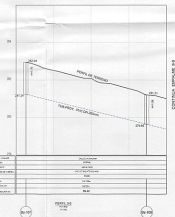
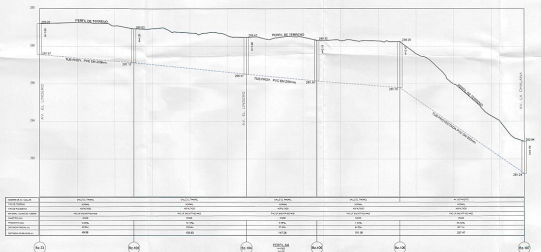
PROYECTO
C.A. SUREM
CALLE 100 N. # 100, PISO 10, GUAYAMA, P.R. 00961
TEL: 787-762-1111
E-MAIL: SUREM@SUREM.COM
WWW.SUREM.COM

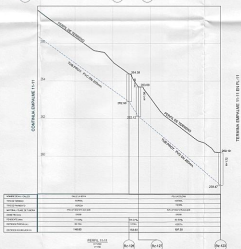
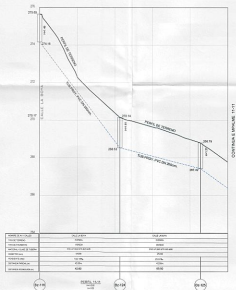
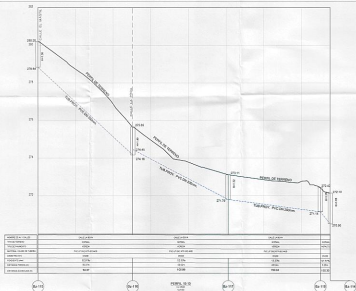
FECHA ÚLTIMA DE MODIFICACIÓN
PROYECTO
CBO-14

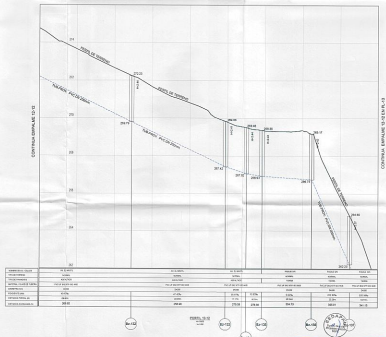
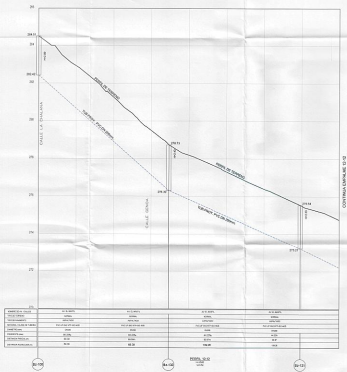
PL-02
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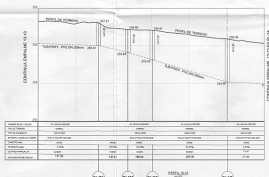
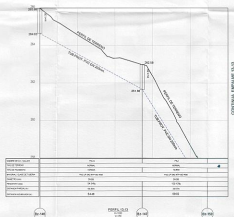
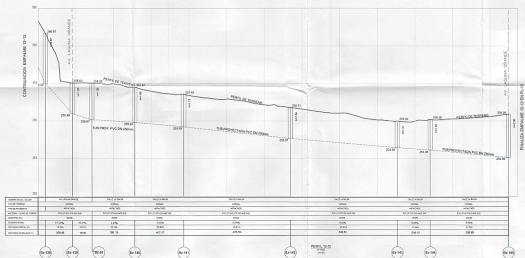
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[illegible]

Technical drawing of the cross-section A-A of a vertical shaft structure. The drawing shows a vertical shaft with a central column and surrounding structural elements. Key components labeled include: 'FOLIO' (leaf) at the top, 'TUBO CON LAMINA' (tube with lamina), 'DUCTO ASPIRACION' (suction duct), 'BOLSA CON TAPA' (bag with cover), 'MARCAS METEOR' (weather marks), 'ELEVACION METEOR' (weather elevation), 'REJILLA' (grate), and 'BOLSA CON TAPA' (bag with cover). Dimensions are provided in meters (m) and centimeters (cm). The drawing is titled 'CORTE A-A' and 'ESC. 1/20'.

| HISTÓRICO DE CANCELAMENTO DE VAGAS | | | |
|------------------------------------|----------------------------------|------|------------|
| MOTIVO DO CANCELAMENTO | | | |
| NÚMERO | DESCRIÇÃO | DIAS | DATA |
| 1 | WAGNER LOPES | 11 | 2010-07-01 |
| 2 | WAGNER DE SOUZA | 10 | 2010-07-01 |
| 3 | MARCELO CHEN FIL. RES. TUB. 0000 | 10 | 2010-07-01 |
| 4 | WAGNER DE ALMEIDA SILVA | 10 | 2010-07-01 |
| 5 | WAGNER DE ALMEIDA DE SOUZA | 10 | 2010-07-01 |
| 6 | WAGNER LOPES | 10 | 2010-07-01 |
| 7 | WAGNER LOPES | 10 | 2010-07-01 |
| 8 | WAGNER LOPES | 10 | 2010-07-01 |
| 9 | WAGNER LOPES | 10 | 2010-07-01 |
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| 19 | WAGNER LOPES | 10 | 2010-07-01 |
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| 76 | WAGNER LOPES | 10 | 2010-07-01 |
| 77 | WAGNER LOPES | 10 | 2010-07-01 |
| 78 | WAGNER LOPES | 10 | 2010-07-01 |

| NOMENCLATURA - CUBAS DE FLUIDO | | | |
|--------------------------------|--------------------------------|----------|----------|
| PLACAS | DESCRIPCION | POSICION | UNIDADES |
| 01 | WATER TANK 10' DIA. X 10' HIGH | 200 | 1 |
| 02 | WATER TANK 10' DIA. X 10' HIGH | 200 | 1 |
| 03 | WATER TANK 10' DIA. X 10' HIGH | 200 | 1 |
| 04 | WATER TANK 10' DIA. X 10' HIGH | 200 | 1 |
| 05 | WATER TANK 10' DIA. X 10' HIGH | 200 | 1 |

| ESPECIFICACIONES TÉCNICAS | |
|---------------------------|-----------------------|
| CONSUMO DE ENERGÍA | 1000W |
| VELOCIDAD DE CARGA | 10000mAh/24H |
| TIPO DE CARGA | Inductiva y por cable |

1. **Author:** [Name]
 2. **Title:** [Title]
 3. **Journal:** [Journal]
 4. **Volume:** [Volume]
 5. **Issue:** [Issue]
 6. **Page:** [Page]
 7. **Year:** [Year]

10/12/2011



consorcio
ROMAHN

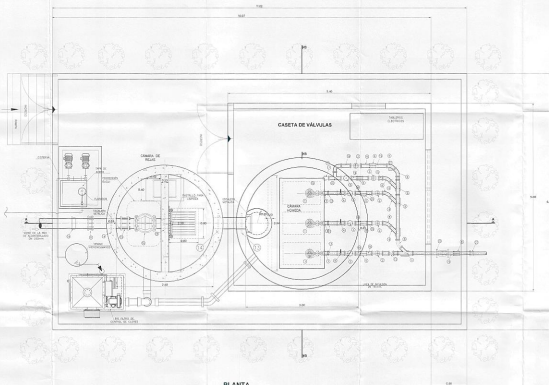
SERVICIO DE AGUA POTABLE Y ELCTRICIDAD DE LIMA
COMUNIDAD DE PROYECTOS Y OBRAS

CONSORCIO ROMAHN
CONSULTORES S.A.C. - INRM

CE-01

CONSORCIO ROMAHN
CONSULTORES S.A.C. - INRM

CE-01



PLANTA

| NOMENCLATURA CÍRULO DE USUARIOS | | | |
|---------------------------------|--------------------------------------|---------|----------|
| MÉDICO DE FAMILIA | | | |
| NÚMERO | DESCRIPCIÓN | EN | DEFICITO |
| 1 | ROMER LUMBRICUS | --- | 3 |
| 2 | VALVULA DE COMPLETAR HIST | --- | 3 |
| 3 | VALVULA DUCHEN REE HIST COMRO | 100 | 3 |
| 4 | VALVULA DE AIRE MIRA-BONACHE | 100 | 3 |
| 5 | VALVULA DE ALAMB DE RECEPCION HIST | 100 | 3 |
| 6 | VALVULA FLUJOMOTR DESE HANGROVA HIST | 100 | 4 |
| 7 | BOBIN HIST. HIST | 100 | 5 |
| 8 | BOBIN HIST. HIST | 100 | 6 |
| 9 | BOBIN HIST. HIST | 100-100 | 6 |
| 10 | BOBIN HIST. HIST | 100-100 | 6 |
| 11 | BOBIN HIST. HIST | 100-100 | 6 |
| 12 | BOBIN HIST. HIST | 100-100 | 6 |
| 13 | BOBIN HIST. HIST | 100-100 | 6 |
| 14 | BOBIN HIST. HIST | 100-100 | 6 |
| 15 | BOBIN HIST. HIST | 100-100 | 6 |
| 16 | BOBIN HIST. HIST | 100-100 | 6 |
| 17 | BOBIN HIST. HIST | 100-100 | 6 |
| 18 | BOBIN HIST. HIST | 100-100 | 6 |
| 19 | BOBIN HIST. HIST | 100-100 | 6 |
| 20 | BOBIN HIST. HIST | 100-100 | 6 |
| 21 | BOBIN HIST. HIST | 100-100 | 6 |
| 22 | BOBIN HIST. HIST | 100-100 | 6 |
| 23 | BOBIN HIST. HIST | 100-100 | 6 |
| 24 | BOBIN HIST. HIST | 100-100 | 6 |
| 25 | BOBIN HIST. HIST | 100-100 | 6 |
| 26 | BOBIN HIST. HIST | 100-100 | 6 |
| 27 | BOBIN HIST. HIST | 100-100 | 6 |
| 28 | BOBIN HIST. HIST | 100-100 | 6 |
| 29 | BOBIN HIST. HIST | 100-100 | 6 |
| 30 | BOBIN HIST. HIST | 100-100 | 6 |
| 31 | BOBIN HIST. HIST | 100-100 | 6 |
| 32 | BOBIN HIST. HIST | 100-100 | 6 |
| 33 | BOBIN HIST. HIST | 100-100 | 6 |
| 34 | BOBIN HIST. HIST | 100-100 | 6 |
| 35 | BOBIN HIST. HIST | 100-100 | 6 |
| 36 | BOBIN HIST. HIST | 100-100 | 6 |
| 37 | BOBIN HIST. HIST | 100-100 | 6 |
| 38 | BOBIN HIST. HIST | 100-100 | 6 |
| 39 | BOBIN HIST. HIST | 100-100 | 6 |
| 40 | BOBIN HIST. HIST | 100-100 | 6 |
| 41 | BOBIN HIST. HIST | 100-100 | 6 |
| 42 | BOBIN HIST. HIST | 100-100 | 6 |
| 43 | BOBIN HIST. HIST | 100-100 | 6 |
| 44 | BOBIN HIST. HIST | 100-100 | 6 |
| 45 | BOBIN HIST. HIST | 100-100 | 6 |
| 46 | BOBIN HIST. HIST | 100-100 | 6 |
| 47 | BOBIN HIST. HIST | 100-100 | 6 |
| 48 | BOBIN HIST. HIST | 100-100 | 6 |
| 49 | BOBIN HIST. HIST | 100-100 | 6 |
| 50 | BOBIN HIST. HIST | 100-100 | 6 |
| 51 | BOBIN HIST. HIST | 100-100 | 6 |
| 52 | BOBIN HIST. HIST | 100-100 | 6 |
| 53 | BOBIN HIST. HIST | 100-100 | 6 |
| 54 | BOBIN HIST. HIST | 100-100 | 6 |
| 55 | BOBIN HIST. HIST | 100-100 | 6 |
| 56 | BOBIN HIST. HIST | 100-100 | 6 |
| 57 | BOBIN HIST. HIST | 100-100 | 6 |
| 58 | BOBIN HIST. HIST | 100-100 | 6 |
| 59 | BOBIN HIST. HIST | 100-100 | 6 |
| 60 | BOBIN HIST. HIST | 100-100 | 6 |
| 61 | BOBIN HIST. HIST | 100-100 | 6 |
| 62 | BOBIN HIST. HIST | 100-100 | 6 |
| 63 | BOBIN HIST. HIST | 100-100 | 6 |
| 64 | BOBIN HIST. HIST | 100-100 | 6 |
| 65 | BOBIN HIST. HIST | 100-100 | 6 |
| 66 | BOBIN HIST. HIST | 100-100 | 6 |
| 67 | BOBIN HIST. HIST | 100-100 | 6 |
| 68 | BOBIN HIST. HIST | 100-100 | 6 |
| 69 | BOBIN HIST. HIST | 100-100 | 6 |
| 70 | BOBIN HIST. HIST | 100-100 | 6 |
| 71 | BOBIN HIST. HIST | 100-100 | 6 |
| 72 | BOBIN HIST. HIST | 100-100 | 6 |
| 73 | BOBIN HIST. HIST | 100-100 | 6 |
| 74 | BOBIN HIST. HIST | 100-100 | 6 |
| 75 | BOBIN HIST. HIST | 100-100 | 6 |
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| 78 | BOBIN HIST. HIST | 100-100 | 6 |
| 79 | BOBIN HIST. HIST | 100-100 | 6 |
| 80 | BOBIN HIST. HIST | 100-100 | 6 |
| 81 | BOBIN HIST. HIST | 100-100 | 6 |
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| 83 | BOBIN HIST. HIST | 100-100 | 6 |
| 84 | BOBIN HIST. HIST | 100-100 | 6 |
| 85 | BOBIN HIST. HIST | 100-100 | 6 |
| 86 | BOBIN HIST. HIST | 100-100 | 6 |
| 87 | BOBIN HIST. HIST | 100-100 | 6 |

| KONSTRUKSI - GABUNG REVISI | | | |
|----------------------------|----------|----------|----------|
| NO | REVISI | REVISI | REVISI |
| 1 | REVISI 1 | REVISI 1 | REVISI 1 |
| 2 | REVISI 2 | REVISI 2 | REVISI 2 |
| 3 | REVISI 3 | REVISI 3 | REVISI 3 |
| 4 | REVISI 4 | REVISI 4 | REVISI 4 |
| 5 | REVISI 5 | REVISI 5 | REVISI 5 |

| ESPECIFICACIONES TÉCNICAS | |
|---------------------------|---------------------|
| FORMATO DE ENTREGA | CD-ROM |
| ACTUALIZACIÓN DEL | SOFTWARE AL 2007 |
| ALTERNATIVAS DE | INSTALACIÓN Y/O USO |

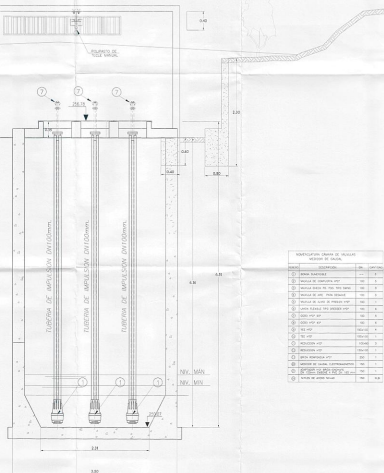
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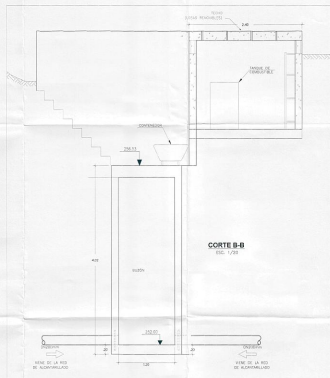
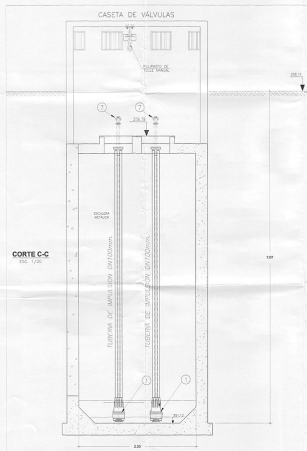
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|---------------------|--------|
| 1. 2017 年 12 月 31 日 | 100.00 |
| 2. 2018 年 1 月 1 日 | 100.00 |
| 3. 2018 年 12 月 31 日 | 100.00 |



CASETA DE VÁLVULAS

CORTE B-B
ESC. 1/20





IDENTIFICACION LÍNEAS DE TRAZADO
SEGÚN DE LÍNEA

| NÚMERO | DESCRIPCION | EN | LONGITUD |
|--------|----------------------|----|----------|
| 1 | LINEA LATERAL | EN | 1 |
| 2 | LINEA DE CIMENTACION | EN | 2 |
| 3 | LINEA DE CIMENTACION | EN | 2 |
| 4 | LINEA DE CIMENTACION | EN | 2 |
| 5 | LINEA DE CIMENTACION | EN | 2 |
| 6 | LINEA DE CIMENTACION | EN | 2 |
| 7 | LINEA DE CIMENTACION | EN | 2 |
| 8 | LINEA DE CIMENTACION | EN | 2 |
| 9 | LINEA DE CIMENTACION | EN | 2 |
| 10 | LINEA DE CIMENTACION | EN | 2 |
| 11 | LINEA DE CIMENTACION | EN | 2 |
| 12 | LINEA DE CIMENTACION | EN | 2 |
| 13 | LINEA DE CIMENTACION | EN | 2 |
| 14 | LINEA DE CIMENTACION | EN | 2 |
| 15 | LINEA DE CIMENTACION | EN | 2 |
| 16 | LINEA DE CIMENTACION | EN | 2 |
| 17 | LINEA DE CIMENTACION | EN | 2 |
| 18 | LINEA DE CIMENTACION | EN | 2 |
| 19 | LINEA DE CIMENTACION | EN | 2 |
| 20 | LINEA DE CIMENTACION | EN | 2 |

ESPECIFICACIONES TÉCNICAS

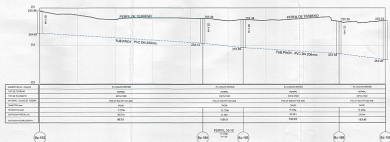
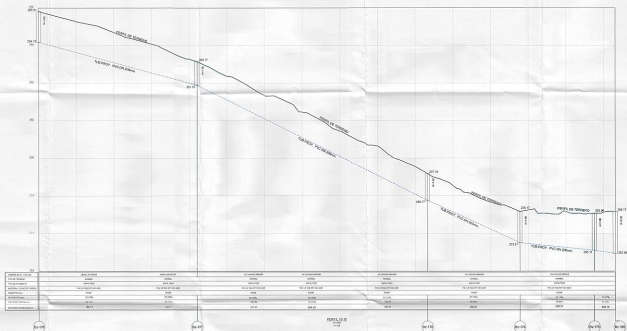
| DESCRIPCION DE MATERIALES | MATERIAL QUE ENTREGAR |
|------------------------------------|-----------------------|
| 1. CEMENTO, tipo 40, marca LAFARGE | 100 kg |
| 2. ARENA, tipo 0.425 mm | 100 kg |
| 3. GRASA, tipo 0.425 mm | 100 kg |
| 4. GRASA, tipo 0.425 mm | 100 kg |
| 5. GRASA, tipo 0.425 mm | 100 kg |
| 6. GRASA, tipo 0.425 mm | 100 kg |
| 7. GRASA, tipo 0.425 mm | 100 kg |
| 8. GRASA, tipo 0.425 mm | 100 kg |
| 9. GRASA, tipo 0.425 mm | 100 kg |
| 10. GRASA, tipo 0.425 mm | 100 kg |
| 11. GRASA, tipo 0.425 mm | 100 kg |
| 12. GRASA, tipo 0.425 mm | 100 kg |
| 13. GRASA, tipo 0.425 mm | 100 kg |
| 14. GRASA, tipo 0.425 mm | 100 kg |
| 15. GRASA, tipo 0.425 mm | 100 kg |
| 16. GRASA, tipo 0.425 mm | 100 kg |
| 17. GRASA, tipo 0.425 mm | 100 kg |
| 18. GRASA, tipo 0.425 mm | 100 kg |
| 19. GRASA, tipo 0.425 mm | 100 kg |
| 20. GRASA, tipo 0.425 mm | 100 kg |

servipol SERVIDOR DE AGUA POTABLE Y ALIMENTARIO DE LIMA
GERENCIA DE PROYECTOS Y OBRAS

CONSORCIO ROMANNS CONSULTORES S.A. - INREM

CE-02

03 DE 03



sedapal SERVICIO DE AGUA POTABLE Y ALCANTARILLADO DE LIMA
CONSORCIO ROMARINO CONSULTORES S.A. - SMRM

PROYECTO: OBRAS DE RECONSTRUCCIÓN DEL TUNEL DE AGUA POTABLE EN LA ZONA DE LA VILLA DE SAN JUAN DE LOS RIOS, DISTRITO DE SAN JUAN DE LOS RIOS, PROVINCIA DE SAN JUAN DE LOS RIOS, DEPARTAMENTO DE SAN JUAN DE LOS RIOS.

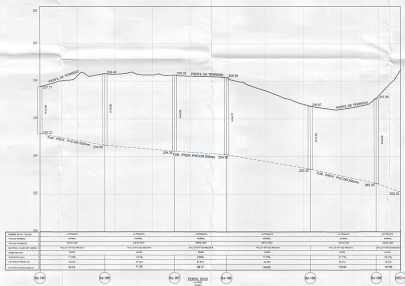
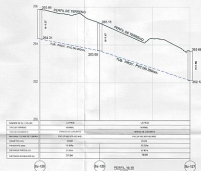
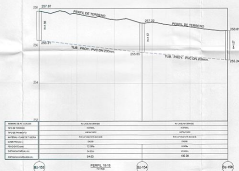
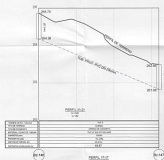
FECHA: 15/05/2018

HOJA: 01 DE 01

PROYECTO: OBRAS DE RECONSTRUCCIÓN DEL TUNEL DE AGUA POTABLE EN LA ZONA DE LA VILLA DE SAN JUAN DE LOS RIOS, DISTRITO DE SAN JUAN DE LOS RIOS, PROVINCIA DE SAN JUAN DE LOS RIOS, DEPARTAMENTO DE SAN JUAN DE LOS RIOS.

FECHA: 15/05/2018

HOJA: 01 DE 01



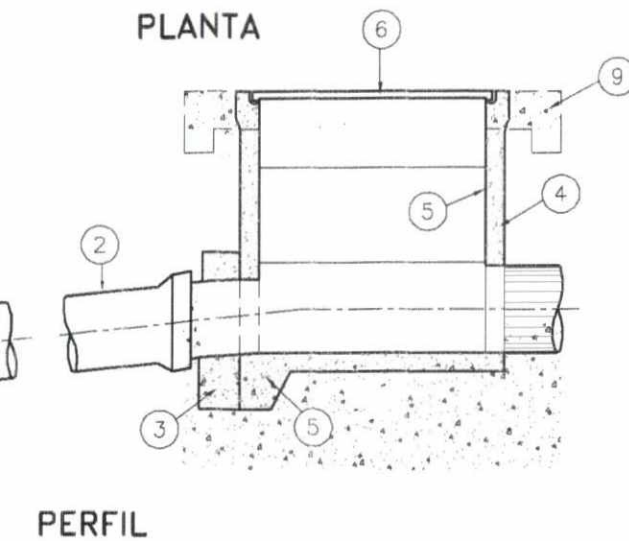
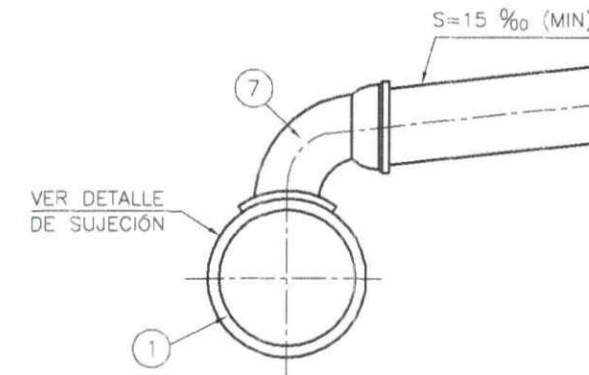
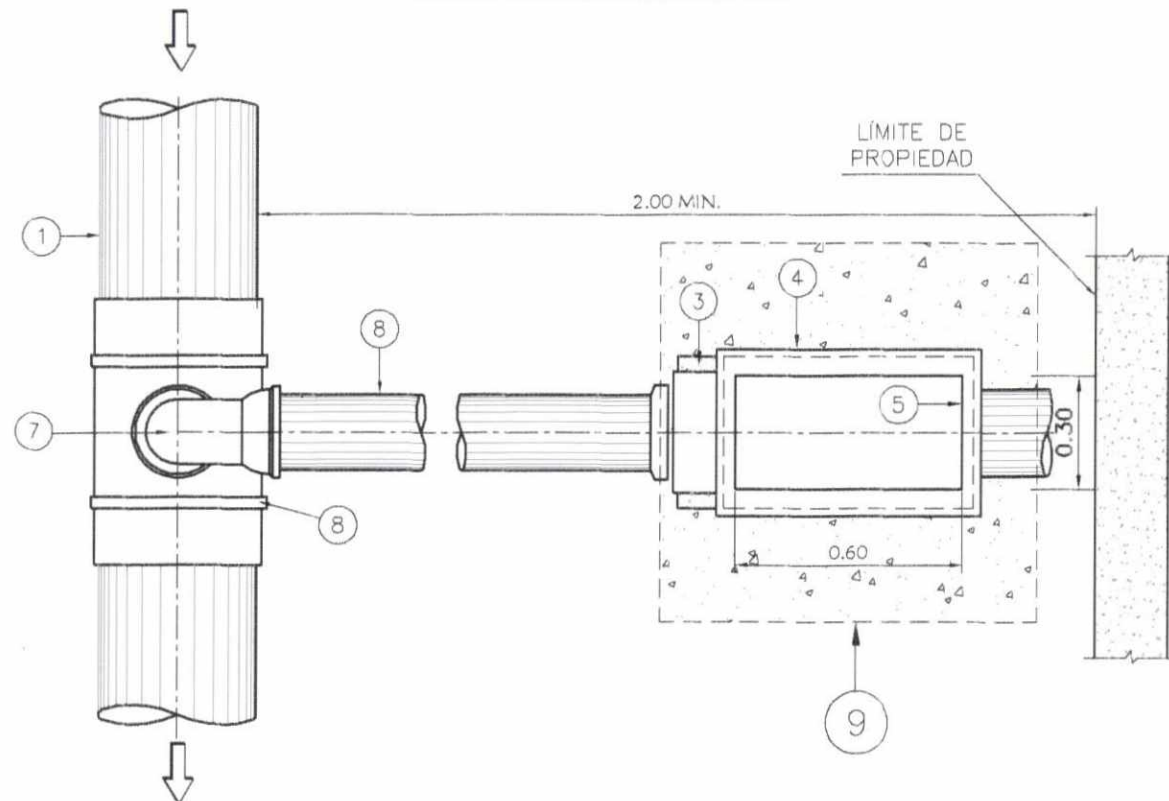
servicio de AGUA POTABLE Y ALICANTAMIENTO DE LUGAR
COMITÉ DE PROYECTO Y OBRAS
CONSORCIO ROMANES CONSULTORES SAC - SRRM

PROYECTO DE OBRAS DE AGUA POTABLE Y ALICANTAMIENTO DE LUGAR
 EN EL DISTRITO DE SAN JUAN DE LOS RIOS
 EN EL MUNICIPIO DE SAN JUAN DE LOS RIOS
 EN EL DEPARTAMENTO DE CUNDINAMARCA

FECHA DE ELABORACION: 01 DE 01

PL-18

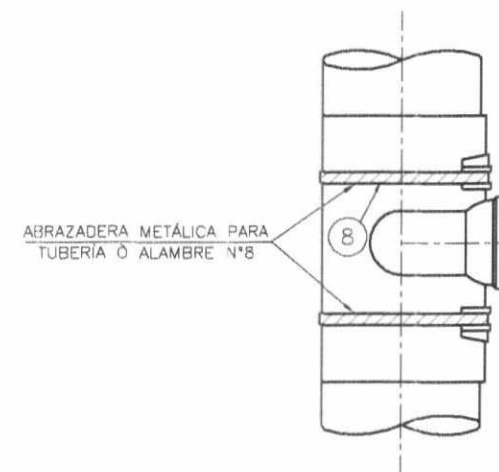
CONEXIÓN DOMICILIARIA DE ALCANTARILLADO



CONSORCIO
ROMAHNS CONSULTORES SAC-
SEBASTIAN MIGUEL RODRIGUEZ MARTINEZ
[Signature]
Ing. Edgar Aquiles Badillo Guevara
CIP N° 063962
Esp. en Diseño de Sistemas de agua potable y alcantarillado

LEYENDA CONEXIÓN DOMICILIARIA DE ALCANTARILLADO

| ITEM | DESCRIPCIÓN |
|------|--|
| ① | COLECTOR DE PVC ISO 4435 S-25 DN 160 ≤ D < 200mm. |
| ② | TUBERIA DE DESCARGA PVC ISO 4435 S-25, DN160 |
| ③ | ANCLAJE, CONCRETO $f_c=140 \text{ Kg/cm}^2$ |
| ④ | CAJA DE REGISTRO ESTANDAR CONCRETO |
| ⑤ | SOLAQUEO C/ CEMENTO |
| ⑥ | TAPA CONCRETO 0.30 x 0.60 m. |
| ⑦ | CACHIMBA 90°, 45° o 22.5° |
| ⑧ | ABRAZADERA Ó ALAMBRE N°8 |
| ⑨ | LOSA DE CONCRETO $f'c=140\text{Kg/cm}^2$ 1.00mx1.00x0.10m. |



DETALLE DE INSTALACIÓN DE SILLA
TEE EN COLECTOR

NOTA:

- LA SILLA DEBE SER INSTALADA USANDO PREPARADOR DE SUPERFICIE Y ADHESIVO; MIENTRAS ÉSTA FRAGUA SE DEBE COLOCAR UNA ABRAZADERA PARA FIJAR LA SILLA, TAMBIEN PUEDE USARSE ALAMBRE N°8
- EN CASO DE NO EXISTIR VEREDA SE CONSTRUIRA UNA LOSA DE 1.00mx1.00x0.10m. CONCRETO $f'c=140\text{Kg/cm}^2$



CONSORCIO
ROMAHNS CONSULTORES SAC-
SEBASTIAN MIGUEL RODRIGUEZ MARTINEZ
[Signature]
Ing. Víctor José Lovera Asto
CIP N° 058707
Director de Proyecto

NOTAS:

LA CACHIMBA PODRA SER REEMPLAZADA POR
SILLA TEE + CODO DE 90°, 45° o 22.5°. SEGUN EL CASO

| | |
|--|---|
| SERVICIO DE AGUA POTABLE Y ALCANTARILLADO DE LIMA GERENCIA DE PROYECTOS Y OBRAS | |
| CONSORCIO ROMAHNS CONSULTORES SAC -SMRM | |
| PROYECTISTA: | DISTRITO: LA MOLINA |
| PROYECTO: SERVICIO DE CONSULTORIA PARA LA ELABORACIÓN DEL ESTUDIO DE PRE INVERSIÓN A NIVEL DE PERFIL DEL PROYECTO: MEJORAMIENTO Y REHABILITACIÓN DEL SISTEMA DE AGUA POTABLE Y ALCANTARILLADO DE LA URBANIZACIÓN CLUB CAMPESTRE LAS LAGUNAS - DISTRITO DE LA MOLINA | PROF. RESPONSABLE: Ing. VICTOR JOSE LOVERA ASTO ESPECIALISTA: Ing. EDGAR BADILLO GUEVARA DIBUJO: Y.G.Y. TOPOGRAFIA: Ing. ANDRÉS RODRÍGUEZ M. ESCALA: 6/E FECHA: LIMA, FEBRERO DEL 2013 |
| PLANO DE: ALCANTARILLADO - DETALLE DE CONEXIONES | N° DE PROYECTO: ADP N°0057-2014-SEDAPAL PLANO N°: DT-01 TOTAL DE PLANOS: 01 DE 01 |



LAS SUPERFICIES INTERIORES DEL FONDO DE
TECHOLON MEDIANTE 1:5 CONCRETO ARENOSO 1:4 3/4
DE ESPESOR Y ACABADO PULCO.
LOS Muros INTERIORES DEBERAN SER
ISOLADOS

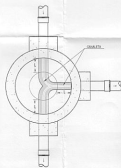


| | | |
|----|--------------------------|------|
| 4 | 60mm | 20mm |
| 5 | 60mm | 40mm |
| 6 | 60mm | 60mm |
| 7 | 60mm | 80mm |
| 8 | LARGHO DE LA BOTA | |
| 9 | LARGHO DE LA BOTA | |
| 10 | LARGHO DE LA BOTA | |
| 11 | LARGHO NORMAL DE LA BOTA | |

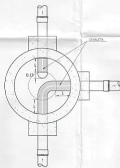
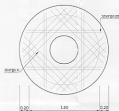
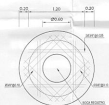
DETALLES TÍPICOS DE ESTIMOS

| EXERCÍCIOS DE REVISÃO ALGEBRA | |
|----------------------------------|---|
| 1. Dado o polinômio | |
| $P(x) = 2x^3 - 5x^2 + 3x - 7$ | |
| encontre: | |
| a) $P(1)$ | $P(1) = 2(1)^3 - 5(1)^2 + 3(1) - 7 = 2 - 5 + 3 - 7 = -7$ |
| b) $P(-1)$ | $P(-1) = 2(-1)^3 - 5(-1)^2 + 3(-1) - 7 = -2 - 5 - 3 - 7 = -17$ |
| c) $P(0)$ | $P(0) = 2(0)^3 - 5(0)^2 + 3(0) - 7 = -7$ |
| d) $P(2)$ | $P(2) = 2(2)^3 - 5(2)^2 + 3(2) - 7 = 8 - 20 + 6 - 7 = -13$ |
| e) $P(-2)$ | $P(-2) = 2(-2)^3 - 5(-2)^2 + 3(-2) - 7 = -8 - 20 - 6 - 7 = -31$ |
| f) $P(3)$ | $P(3) = 2(3)^3 - 5(3)^2 + 3(3) - 7 = 18 - 45 + 9 - 7 = -25$ |
| g) $P(-3)$ | $P(-3) = 2(-3)^3 - 5(-3)^2 + 3(-3) - 7 = -18 - 45 - 9 - 7 = -79$ |
| h) $P(4)$ | $P(4) = 2(4)^3 - 5(4)^2 + 3(4) - 7 = 32 - 80 + 12 - 7 = -43$ |
| i) $P(-4)$ | $P(-4) = 2(-4)^3 - 5(-4)^2 + 3(-4) - 7 = -32 - 80 - 12 - 7 = -131$ |
| j) $P(5)$ | $P(5) = 2(5)^3 - 5(5)^2 + 3(5) - 7 = 50 - 125 + 15 - 7 = -67$ |
| k) $P(-5)$ | $P(-5) = 2(-5)^3 - 5(-5)^2 + 3(-5) - 7 = -50 - 125 - 15 - 7 = -197$ |
| l) $P(6)$ | $P(6) = 2(6)^3 - 5(6)^2 + 3(6) - 7 = 72 - 180 + 18 - 7 = -97$ |
| m) $P(-6)$ | $P(-6) = 2(-6)^3 - 5(-6)^2 + 3(-6) - 7 = -72 - 180 - 18 - 7 = -277$ |
| n) $P(7)$ | $P(7) = 2(7)^3 - 5(7)^2 + 3(7) - 7 = 98 - 245 + 21 - 7 = -133$ |
| o) $P(-7)$ | $P(-7) = 2(-7)^3 - 5(-7)^2 + 3(-7) - 7 = -98 - 245 - 21 - 7 = -371$ |
| p) $P(8)$ | $P(8) = 2(8)^3 - 5(8)^2 + 3(8) - 7 = 128 - 320 + 24 - 7 = -175$ |
| q) $P(-8)$ | $P(-8) = 2(-8)^3 - 5(-8)^2 + 3(-8) - 7 = -128 - 320 - 24 - 7 = -479$ |
| r) $P(9)$ | $P(9) = 2(9)^3 - 5(9)^2 + 3(9) - 7 = 162 - 405 + 27 - 7 = -223$ |
| s) $P(-9)$ | $P(-9) = 2(-9)^3 - 5(-9)^2 + 3(-9) - 7 = -162 - 405 - 27 - 7 = -599$ |
| t) $P(10)$ | $P(10) = 2(10)^3 - 5(10)^2 + 3(10) - 7 = 200 - 500 + 30 - 7 = -277$ |
| u) $P(-10)$ | $P(-10) = 2(-10)^3 - 5(-10)^2 + 3(-10) - 7 = -200 - 500 - 30 - 7 = -737$ |
| v) $P(11)$ | $P(11) = 2(11)^3 - 5(11)^2 + 3(11) - 7 = 242 - 605 + 33 - 7 = -337$ |
| w) $P(-11)$ | $P(-11) = 2(-11)^3 - 5(-11)^2 + 3(-11) - 7 = -242 - 605 - 33 - 7 = -887$ |
| x) $P(12)$ | $P(12) = 2(12)^3 - 5(12)^2 + 3(12) - 7 = 288 - 720 + 36 - 7 = -403$ |
| y) $P(-12)$ | $P(-12) = 2(-12)^3 - 5(-12)^2 + 3(-12) - 7 = -288 - 720 - 36 - 7 = -1051$ |
| z) $P(13)$ | $P(13) = 2(13)^3 - 5(13)^2 + 3(13) - 7 = 338 - 845 + 39 - 7 = -475$ |
| aa) $P(-13)$ | $P(-13) = 2(-13)^3 - 5(-13)^2 + 3(-13) - 7 = -338 - 845 - 39 - 7 = -1230$ |
| ab) $P(14)$ | $P(14) = 2(14)^3 - 5(14)^2 + 3(14) - 7 = 392 - 980 + 42 - 7 = -553$ |
| ac) $P(-14)$ | $P(-14) = 2(-14)^3 - 5(-14)^2 + 3(-14) - 7 = -392 - 980 - 42 - 7 = -1411$ |
| ad) $P(15)$ | $P(15) = 2(15)^3 - 5(15)^2 + 3(15) - 7 = 450 - 1125 + 45 - 7 = -637$ |
| ae) $P(-15)$ | $P(-15) = 2(-15)^3 - 5(-15)^2 + 3(-15) - 7 = -450 - 1125 - 45 - 7 = -1627$ |
| af) $P(16)$ | $P(16) = 2(16)^3 - 5(16)^2 + 3(16) - 7 = 512 - 1280 + 48 - 7 = -727$ |
| ag) $P(-16)$ | $P(-16) = 2(-16)^3 - 5(-16)^2 + 3(-16) - 7 = -512 - 1280 - 48 - 7 = -1847$ |
| ah) $P(17)$ | $P(17) = 2(17)^3 - 5(17)^2 + 3(17) - 7 = 578 - 1445 + 51 - 7 = -823$ |
| ai) $P(-17)$ | $P(-17) = 2(-17)^3 - 5(-17)^2 + 3(-17) - 7 = -578 - 1445 - 51 - 7 = -2081$ |
| aj) $P(18)$ | $P(18) = 2(18)^3 - 5(18)^2 + 3(18) - 7 = 648 - 1620 + 54 - 7 = -925$ |
| ak) $P(-18)$ | $P(-18) = 2(-18)^3 - 5(-18)^2 + 3(-18) - 7 = -648 - 1620 - 54 - 7 = -2299$ |
| al) $P(19)$ | $P(19) = 2(19)^3 - 5(19)^2 + 3(19) - 7 = 722 - 1805 + 57 - 7 = -1033$ |
| am) $P(-19)$ | $P(-19) = 2(-19)^3 - 5(-19)^2 + 3(-19) - 7 = -722 - 1805 - 57 - 7 = -2591$ |
| an) $P(20)$ | $P(20) = 2(20)^3 - 5(20)^2 + 3(20) - 7 = 800 - 2000 + 60 - 7 = -1207$ |
| ao) $P(-20)$ | $P(-20) = 2(-20)^3 - 5(-20)^2 + 3(-20) - 7 = -800 - 2000 - 60 - 7 = -2867$ |
| ap) $P(21)$ | $P(21) = 2(21)^3 - 5(21)^2 + 3(21) - 7 = 882 - 2205 + 63 - 7 = -1327$ |
| aq) $P(-21)$ | $P(-21) = 2(-21)^3 - 5(-21)^2 + 3(-21) - 7 = -882 - 2205 - 63 - 7 = -3157$ |
| ar) $P(22)$ | $P(22) = 2(22)^3 - 5(22)^2 + 3(22) - 7 = 968 - 2420 + 66 - 7 = -1413$ |
| as) $P(-22)$ | $P(-22) = 2(-22)^3 - 5(-22)^2 + 3(-22) - 7 = -968 - 2420 - 66 - 7 = -3451$ |
| at) $P(23)$ | $P(23) = 2(23)^3 - 5(23)^2 + 3(23) - 7 = 1058 - 2645 + 69 - 7 = -1525$ |
| au) $P(-23)$ | $P(-23) = 2(-23)^3 - 5(-23)^2 + 3(-23) - 7 = -1058 - 2645 - 69 - 7 = -3779$ |
| av) $P(24)$ | $P(24) = 2(24)^3 - 5(24)^2 + 3(24) - 7 = 1152 - 2880 + 72 - 7 = -1663$ |
| aw) $P(-24)$ | $P(-24) = 2(-24)^3 - 5(-24)^2 + 3(-24) - 7 = -1152 - 2880 - 72 - 7 = -4111$ |
| ax) $P(25)$ | $P(25) = 2(25)^3 - 5(25)^2 + 3(25) - 7 = 1250$ |

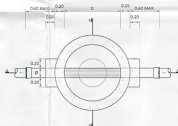
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DETALLE DE ARMADURA
TUBO DE BUCO



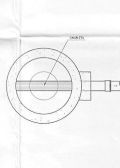
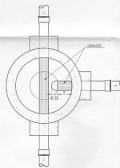
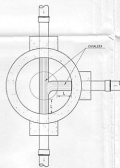
DETALLE DE BUCÓN CON CHULA
D=1.20



PLANTA
CORTA C-C
D=1.20

ESPECIFICACIONES TÉCNICAS

CONCRETO Fc 20Mpa
CONCRETO Fc 20Mpa (para el tubo de buco)
CONCRETO Fc 20Mpa (para el tubo de buco)
ACERO: Ay = 400kg/m²
D= 1.20m (para 1m de profundidad)
D= 1.50m (para 1.5m de profundidad)
Recomendado por ACINSA, S.A.



| TRANSAPES Y EMPALMES | |
|----------------------|------|
| Ø | L |
| 50" | 40cm |
| 60" | 50cm |
| 70" | 60cm |
| 80" | 70cm |
| 90" | 80cm |
| 100" | 90cm |

TRANSAPES Y EMPALMES

| Ø | L | Ø |
|------|------|-------|
| 50" | 40cm | 50cm |
| 60" | 50cm | 60cm |
| 70" | 60cm | 70cm |
| 80" | 70cm | 80cm |
| 90" | 80cm | 90cm |
| 100" | 90cm | 100cm |

DETALLE TÍPICO DE ENTUBADO

BUCÓN TIPO 1: BUCÓN - Ø 1.20m
L1: 0.30 (BUCÓN Ø1.20)
L1: 0.40 (BUCÓN Ø1.50)

| Módulo de acero (aproximado en toneladas) | |
|---|-------|
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |

| ESTRUCTURA INTERNA, BUCÓN | |
|---------------------------|-------|
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |
| Ø | Acero |

NOTA: LOS ELEMENTOS DE CONCRETO DEBEN SER DE CLASE C20/25 Y ACERO DE CLASE A-60.

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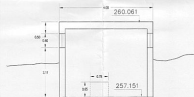
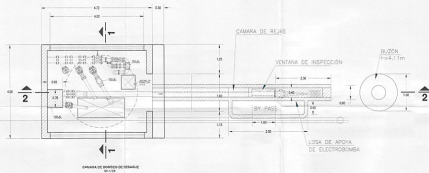
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CONSORCIO ROMAHNS CONSULTORES SAC - S.R.L.

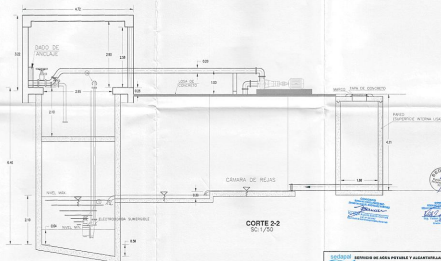
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CORTE 1-1
90: 1/50



CORTE 2-2
SC: 1/50

