

FLC Tunnel Group North I/S
Færgevej 40
4970 Rødby

Dato: 3. september 2025

Sags ID: 981156

Lolland Kommune
Teknik- og Miljømyndighed
Søndre Boulevard 84
4930 Maribo

Tlf.: 54 67 67 67
www.lolland.dk

Kontaktperson
Heidi Pejter Kristensen
Miljø

Afgørelse om ikke-godkendelsespligt til mindre ændringer i øvre bassiner på betonfabrik

Femern Link Contractors' (FLC) betonelementfabrik på Færgevej 40, 4970 Rødby har d. 5. marts 2025 via Byg og Miljø (BOM) fremsendt oplysninger om ønskede ændringer i produktionen og opstilling af mobile olie-/benzinudskillere på udledningen af overfladevand fra øvre bassiner, mens bassiner er tomme for havvand. Efterfølgende er der d. 26. juni 2025 og d. 28. august 2025 fremsendt uddybende miljøteknisk beskrivelse for ændringerne. Den miljøtekniske beskrivelse er vedlagt i bilag 1.

Betonelementfabrikken er omfattet af godkendelsesbekendtgørelsens¹ bilag 2, listepunkt B202 og har miljøgodkendelse fra 3. maj 2021.

Afgørelse

Lolland Kommune træffer afgørelse om ikke-godkendelsespligt for det ansøgte, idet det kan rummes indenfor rammerne af den gældende miljøgodkendelse af 3. maj 2021 og ikke strider mod vilkårene heri.

Afgørelsen er en ikke-afgørelse efter miljøbeskyttelseslovens² § 33, stk. 1 og godkendelsesbekendtgørelsen³ § 3, stk. 2.

Baggrund for sagen

FLC's betonelementfabrik producerer betonelementer til Femern Bælt-forbindelsen. Fabrikken's gældende miljøgodkendelse fra 2021 indeholder standardvilkår⁴ for store betonstøberier, -blanderier og -knuseanlæg, samt vilkår til maskinværkstedaktiviteter, energianlæg og overfladevand til recipient. Tilladelse til spildevandsudledning indgår i godkendelsen, jf. miljøbeskyttelseslovens § 34, stk. 5.

Der skal til tunnelen under Femern Bælt produceres 79 standardelementer og 10 specialelementer, hvorigennem to

¹ 1 Pt. bekendtgørelse nr. 1083 af 9. august 2023 om godkendelse af listevirksomhed

² LBK nr. 1093 af 11. oktober 2024 bekendtgørelse af lov om miljøbeskyttelse

³ BEK nr. 1027 af 2. september 2024 om godkendelse af listevirksomhed

⁴ Dagældende bekendtgørelse nr. 1537 af 9. december 2019 om standardvilkår i godkendelse af listevirksomhed (historisk)

jernbanespor og 4 motorvejsbaner skal køre. Hvert standardelement er cirka 217 m langt, mens specialelementerne er cirka 39 m lange.

Opbygning af standardelementernes armeringsskelet og betonstøbningen foregår indendørs i 3 haller, mens specialelementer støbes udendørs på befæstet område med kontrolleret afledning af overfladevand. Efter støbning flyttes elementerne via hydraulik og glidebjælker ud i et outfittingområde, og herfra videre ud i bassiner, der fungerer som tørdokke (øvre og nedre bassiner). Når et element er færdigt og gjort flydeklar, lukkes havvand ind i bassinerne, og elementet bugseres ud i Femern Bælt.

Detaljeret beskrivelse fremgår af den miljøtekniske beskrivelse i bilag 1.

Etableringen af fabrikken startede i maj 2021, mens første sektion af første element blev påbegyndt juli 2023. I januar 2025 blev første element klar til udskibning. Efter de første produktioner af elementer, har der vist sig behov for at justere produktionen.

Der er behov for at kunne lade nogle aktiviteter følge med ud af outfittingområdet til øvre bassiner, herunder særligt betongenstøbning af mindre områder. Forventeligt bliver behovet for reparationer sjældnere og sjældnere, men vil ikke kunne udelukkes.

De øvre bassiner fungerer som tørdokke, hvor havvand kan holdes ude, mens der arbejdes på et element, og hvor havvand lukkes ind, når elementet skal bugseres ud i havet. Der er dræn under fibertex og grusbelægning, så overfladevand kan drænes til pumpestation og videre til havet, mens bassinet skal være tørlagt. Kørearealer er visse steder i bassinet etableret som støbt beton eller asfalt ovenpå grusbelægning.

På grund af denne periodevis oversvømmelse havde man oprindeligt ikke vurderet det muligt at etablere olie-/benzinudskillere på udledningerne fra de øvre bassiner. Men det har i praksis vist sig, at der er plads til mobile udskillere ved siden af elementerne i bassinet. Derfor ønsker FLC at etablere mobile udskillere sådan, at overfladevandshåndteringen, mens øvre bassiner er tørlagt, svarer til håndteringen i outfittingområderne.

Se ansøgningens miljøtekniske beskrivelse for uddybende beskrivelse (Bilag 1).

Kommunes vurdering

Betonarbejde

Lolland Kommune vurderer, at betongenstøbningen, som vil kunne følge med helt ud i øvre bassiner, er med en metode og i et omfang, der ikke giver anledning til ændringer af overfladevandets karakter, idet der er tale om mindre områder, hvor eventuelt mindre spild af betonmasse kan opsamles, og hvor betonformene ikke afvaskes bagefter.

Øvrigt arbejde

Den øgede kørsel og brug af lifte i øvre bassiner, og den deraf øgede risiko for spild af hydraulik og brændstof, vil kunne håndteres med de mobile olie-/benzinudskillere, som der allerede er krav om på fabrikkens øvrige køre- og oplagsområder og i outfittingområderne.

Samlet vurdering

Lolland Kommune vurderer, at ændringerne i aktiviteter i øvre bassiner ikke vil give anledning til, at overfladevandet vil kunne få en væsentlig anden karakter i forhold til oprindeligt forudsat i miljøgodkendelsen, når olie-/benzinudskillere etableres.

I den gældende miljøgodkendelse er der allerede vilkår, der regulerer hhv. betonarbejde og dimensioneringen og driften af olie-/benzinudskillere. Lolland Kommune vurderer, at reguleringen er tilstrækkelig til også at omfatte ændringerne i øvre bassiner, og at der derfor ikke er behov for nye vilkår.

Samlet set vurderer kommunen, at ændringerne kan ske indenfor rammerne af den gældende miljøgodkendelse.

Høring

Lolland Kommune har vurderet, at forandringerne på fabrikken ikke kan få negativ indvirkning på omkringboende på grund af afstand og ændringernes karakter og omfang. Der er derfor ikke foretaget en høring af naboer.

Lolland Kommune vurderer derudover, at de ønskede aktivitetsændringer på fabrikken ikke vil ændre på forudsætningerne i den VVM (miljøvurdering) af hele Femern Bælt-forbindelsen, der ligger til grund for anlægsloven herfor, da aktivitetsændringerne er indenfor miljøgodkendelsens rammer. Der er derfor ikke tale om projektændringer, som berører miljøvurderingen.

Klage- og søgsmålsvejledning

Klage

I henhold til lov om anlæg og drift af en fast forbindelse over Femern Bælt med tilhørende landanlæg i Danmark, § 13 stk. 1, kan denne afgørelse ikke påklages til anden administrativ myndighed. Dog kan denne afgørelse påklages af Femern A/S og A/S Femern Landanlæg til transportministeren, jf. § 13 stk. 2.

Civilt søgsmål

Hvis afgørelsen ønskes prøvet ved domstolen, skal søgsmål være anlagt senest 6 måneder efter, at afgørelsen er meddelt.

Med venlig hilsen

Heidi Pejter Kristensen
Miljøsagsbehandler

Kopi sendt til

Ifølge miljøbeskyttelsesloven § 99 og § 100 skal visse aktører underrettes direkte om afgørelser efter § 33, fordi de har klageret. Kopi af denne afgørelse er derfor fremsendt til de samme kopimodtagere som den oprindelige og gældende miljøgodkendelse:

- Femern A/S, v/Christian Henriksen, che@femern.dk og Oliver Ries, olri@sbfdk.dk
- Tilsyn og Rådgivning, Styrelsen for Patientsikkerhed, stps@stps.dk
- Danmarks Naturfredningsforening, Lolland, dnlolland-sager@dn.dk
- Danmarks Naturfredningsforening, dn@dn.dk
- Friluftsrådet, storstroem@friluftsradet.dk
- Danmarks Sportsfiskerforbund, post@sportsfiskerforbundet.dk
- Danmarks Fiskeriforening, mail@dkfisk.dk
- Miljøstyrelsen, mst@mst.dk
- Dansk Ornitologisk Forening (DOF), natur@dof.dk
- Greenpeace, info.dk@greenpeace.org

Bilag 1: Miljøteknisk Beskrivelse (af 28. august 2025)

MILJØTEKNISK BESKRIVELSE

Subject **Ændringer af aktiviteter i produktionen af betonelementer til Femern**
Discipline **Environmental services**
ATR no. **RAT11-CHE-199**
TN no. **H49-001**
To **Oliver Ries – Femern A/S**
From **Nethe Ottesen – RAT JV**
Copy to **Susanne Kalmar Pedersen – RAT JV**
Attachments **Bilag 1: Flow diagram PFA, Bilag 2: PST Upper Basins, Bilag 3: TUX-REP-PCA-GE-DES-MOE-700005-0B, tilføjet bagerst i dokumentet**

1. Introduktion

Date 2025-08-26

Femern Bælt-forbindelsen - den kombinerede motorvejs- og togforbindelse under Femern Bælt mellem Lolland i Danmark og Femern i Tyskland – er under etablering.

FLC¹ har ansvaret for design og konstruktion af nordlig tunnel og sydlig tunnel samt portaler og ramper til Femern forbindelsen. Dette inkluderer ansvaret for en betonelementfabrik, som producerer betonelementerne til tunnelen.

Betonelementfabrikken har miljøgodkendelse af 03.05.2021 fra Lolland Kommune, og etablering af fabrikken blev påbegyndt maj 21. Fabrikken påbegyndte støbning af det første segment til det første element i juli 2023. De to første elementer blev bugseret ud fra øvre til nedre bassin i januar 2025 (Se figur 1).

Efter de første måneders produktion har der vist sig behov for justeringer i produktionen, sådan at mindre aktiviteter i relation til kvalitetskontrol og genstøbning af betonområder på elementerne ønskes opjusteret i omfang og frekvens, og sådan at placeringen af disse aktiviteter ønskes udvidet til flere områder af fabrikken.

Hele Femern projektet, inklusive betonelementfabrikken, er omfattet af en anlægslov: "Lov om anlæg og drift af en fast forbindelse over Femern Bælt med tilhørende landanlæg i Danmark, Implementeringsredegørelse". Loven er baseret på en tilhørende

Ramboll-Arup-TEC JV
C/o Rambøll Danmark A/S
Hannemanns Allé 53
DK-2300 Copenhagen S
Denmark

T +45 5161 1000
F +45 5161 1001
www.ramboll.com

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Made by NEOT
Checked by CABR
Approved by SKP

¹ Femern Link Contractors: FLC Portals Group I/S og FLC Tunnel Group North I/S og FLC Tunnel Group South I/S

Miljøvurdering (dengang VVM-redegørelse): "Den faste forbindelse over Femern Bælt (kyst-kyst) VVM-Redegørelse".

2. Omfang af denne beskrivelse

Denne Miljøtekniske Beskrivelse baserer sig på miljøgodkendelsen og den bagvedliggende ansøgning. Beskrivelsen indleder med en kort beskrivelse af hele fabrikken, men er koncentreret om at fremhæve de ønskede ændringer i forhold til det allerede godkendte. For detaljeret beskrivelse af hele fabrikken henvises til miljøgodkendelsen.

Beskrivelsen skal give godkendelsesmyndigheden, Lolland Kommune, alle relevante oplysninger for at vurdere, om de ønskede ændringer kan indeholdes i den gældende miljøgodkendelse, eller om der er behov for tillæg til godkendelsen.

3. Oplysninger om ansøger og ejerforhold

Ansøger:

FLC Tunnel Group North I/S

CVR: 37669296, P-nr.: 1026585135

Færgevej 40

4970 Rødby

Kontaktperson:

Peter Byskov Wang Dalgaard, Senior Environmental Advisor

Email: pbd@flc-jv.com

Mobil: +45 21227649

4. Kortfattet beskrivelse af fabrikken som helhed

Betonelementfabrikken skal producere 79 standardelementer og 10 specielelementer til tunnellen, hvor standardelementer er cirka 217 m lange, mens specielelementerne er cirka 39 m lange.

Betonelementfabrikkens hovedaktivitet er **betonstøbning**, som er omfattet af listepunkt B 202 på bilag 2 i Godkendelsesbekendtgørelsen²: B 202 – "Cementstøberier, betonstøberier (herunder betonelementfabrikker og betonvarefabrikker) samt betonblanderier med en produktion på mere end eller lig med 20.000 tons pr. år"

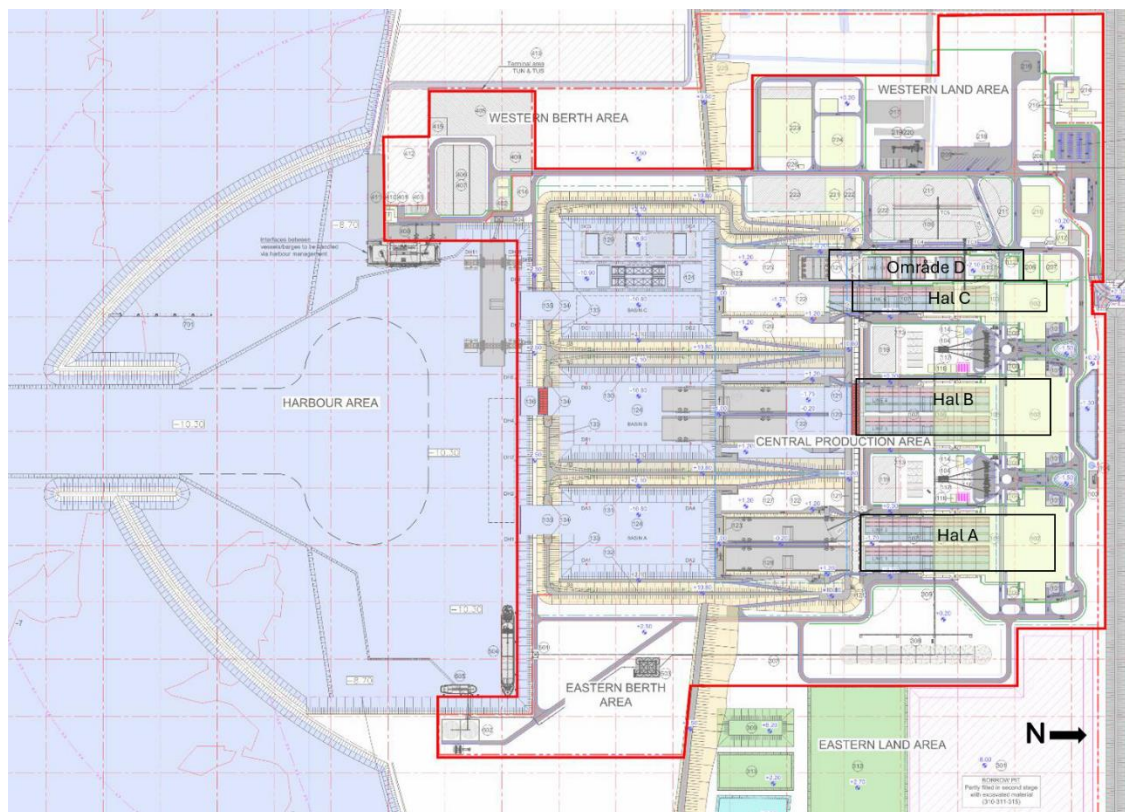
Derudover er fabrikkens armeringsarbejde og andre **værkstedsaktiviteter** omfattet af Metalværkstedsbekendtgørelse³.

Den gældende miljøgodkendelse omfatter også et betonknuseanlæg og et fyringsanlæg, som dog ikke er realiseret.

Den overordnede situationsplan for fabrikken ses i Figur 1.

² Bek nr. 1027 af 02/09/2024, Bekendtgørelse om godkendelse af listevirksomhed

³ Bek. Nr. 1477 af 12/12/2017, Bekendtgørelse om virksomheder, der forarbejder emner af jern, stål eller andre metaller.



Figur 1: Det samlede område som er under FLC's ansvar. Rød linje angiver afgrænsning af fabrikkens aktiviteter, der er omfattet af miljøgodkendelsen. Bemærk at nordlig retning er mod højre. Kilde: ansøgning om miljøgodkendelse af 13.01.2021

Produktion af tunnelelementerne sker i fire parallelle produktionshaller/områder:

- Hal A (østlig hal): 2 produktionslinjer – linje 1 og 2
- Hal B (midterste hal): 2 produktionslinjer – linje 3 og 4
- Hal C (vestlig hal): 1 produktionslinje – linje 5
- Område D (sydvest for vestlig hal): 1 linje til specialelementer– linje 6

Hver produktionslinje har følgende aktiviteter:

I hallerne (og område D for special-elementer)

- Opbygning og samling af armering til et segment
- Installation fugebånd og stålrammer på endesegmenter
- Placering af armering i støbeform
- Påfyld af betonblanding i formen / støbning
- Betonhærdning

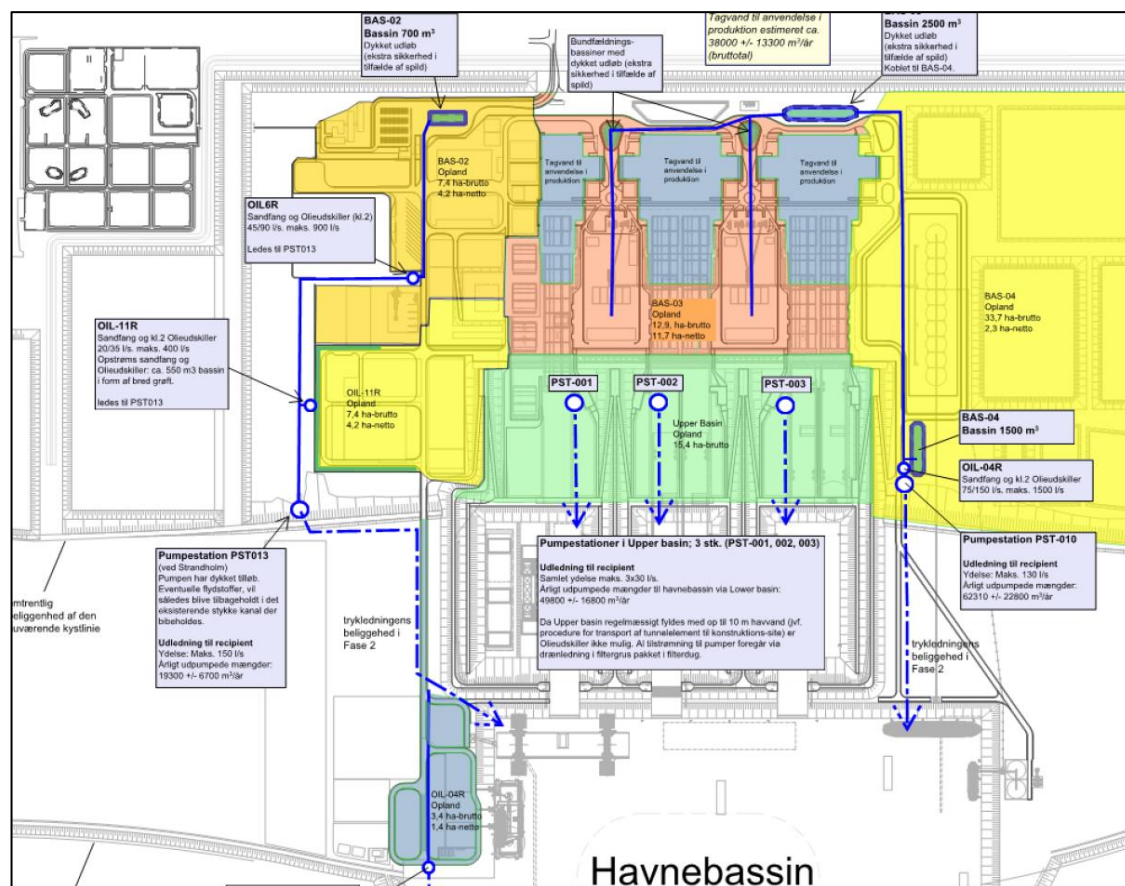
I Outfitting områder:

- borearbejde i beton
- skærearbejde i beton
- andet outfitting-arbejde

I øvre bassiner:

- Afsluttende arbejde, i form af:
 - Montering af materialer til de permanente installationer inde i tunnellerne (fx elinstallationer)
 - Montering af brandbeskyttelse inde i tunnellerne (plader)
- Udrustning til søtransport i form af:
 - montering af skot i enderne af tunnellerne
 - montering af forspændings-kabler
- Udslusning af betonelement

Mellem hallerne ligger betonblandeanlæg til hver hal. Hele fabrikken er inddelt i områder med forskellig håndtering af overfladevand, se Figur 2.



Figur 2: Oprindelig Situationsplan for overfladevandshåndtering, med angivelse af områder og håndtering af overfladevand. Nord er opad. Kilde: ansøgning om miljøgodkendelse af 13.01.2021. OBS: Ajourført plan som bilag.

I Figur 2 er følgende områder fremhævet:

Mørkegrå arealer med tynd grøn kant angiver produktionshaller med tæt belægning og tag/vægge. Tagvand ledes til vandbehandlingsanlæg for vandgenbrug.

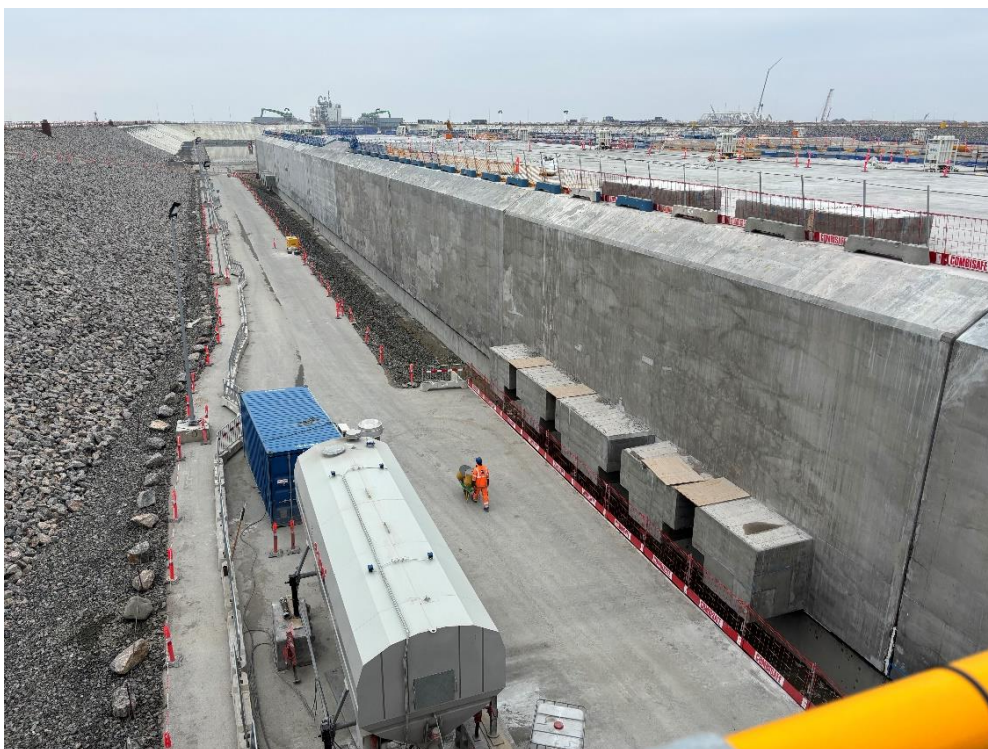
Rødorange arealer angiver områder til outfitting af elementerne efter støbning, betonblandeanlæg, vaskepladser og den udendørs produktionslinje til specialelementer. Områderne er befæstede, og har delvis tæt belægning, med afledning af overfladevand til regnvandsbassiner med bundfældning og efterfølgende oliebenzinudskiller før udledning til Femern Bælt.

Grønt area angiver de tre øvre bassiner med tilhørende nedkørselsramper. Bassinerne er delvis befæstede med beton eller asfalt ovenpå grus og fibertex, hvorunder drænledninger ligger. Når bassinet er tørlagt ledes overfladevand via disse dræn til pumpebrønd og ud i havet. Når elementer skal udskibes, lukkes havvand ind i bassinet, så elementerne kan flyde og bugseres ud i nedre bassin, derefter ud i havnebassinet og ud i Femern Bælt.

Gule områder angiver øvrige udendørs arealer med oplagspladser, køreveje, parkering. Overfladevand ledes via regnvandsbassiner og oliebenzinudskiller til Femern Bælt.

En ajourført situationsplan for overfladevandshåndteringen er vedhæftet i bilag 1.

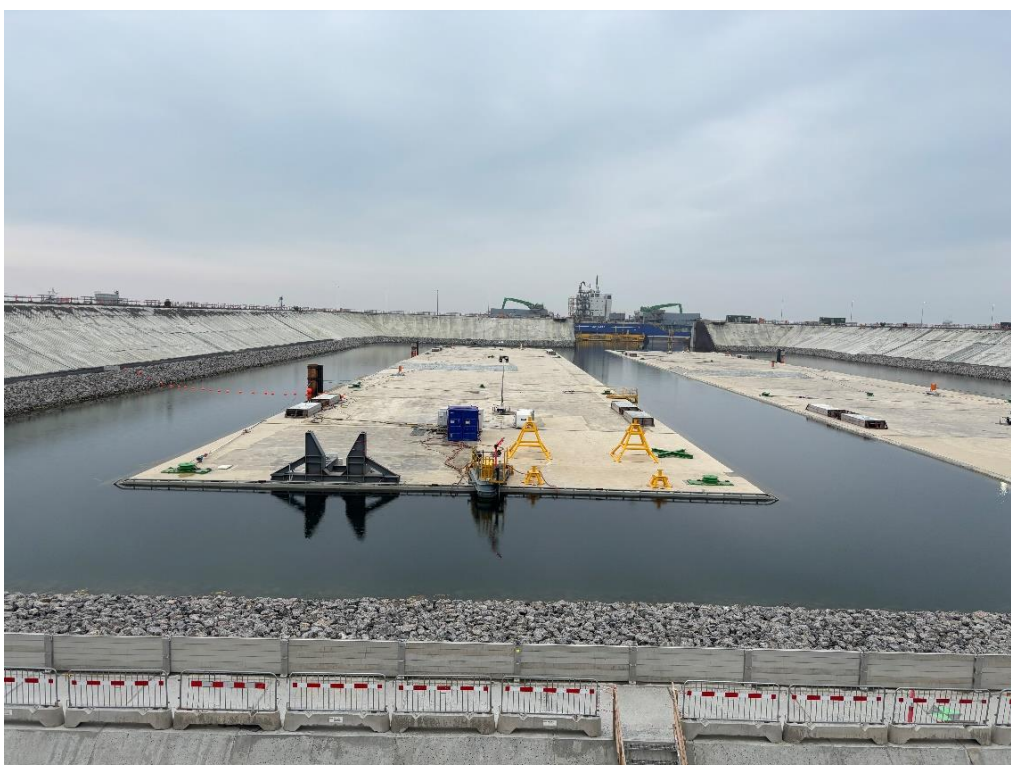
Figur 3 viser et foto af et element i det tørlagte østligste øvre bassin. Figur 4 viser et foto af outfittingområdet mellem Hal A og tilhørende øvre bassin A, hvor to nye elementer er på vej ud af hallen. Figur 5 viser et foto af to elementer i nedre bassin klar til udskibning til havnebassinet.



Figur 3: Foto taget 22.04.2025 af et element i det østligste, tørlagte øvre bassin.



Figur 4: Foto fra 22.04.2025 af outfitting-området foran Hal A set fra toppen af et element i øvre bassin.



Figur 5: Foto fra 22.04.2025 af 2 elementer i nedre bassin, set fra toppen af et element i øvre bassin.

5. Ønskede ændringer i Øvre Bassiner

For at belyse ændringerne i Øvre Bassiner er det nødvendigt først at belyse, hvad der sker i Outfitting-områderne

Outfitting-områder

I hallerne støbes betonelementerne. Processen er en ny måde i forhold til almindelig elementstøbning. Normalt vil store betonelementer blive støbt i etaper, oftest bunden først, så vægge, så betondækket. På fabrikken støbes elementet i stedet i en løbende proces for at sikre tæthed og stabilitet i overgangen mellem sider, bund og dække. Et fuldt skelet af armeringsjern opbygges, hvorefter støbeform (plader) sættes op så betonen kan flydes i lidt efter lidt i én lang støbning. Det kan dog på så store elementer ikke undgås at afgrænsede områder af elementet efter første støbning må repareres. Kvalitetskontrollen udpeger disse områder.

Genstøbninger udføres i hallerne og kan "følge med" ud i outfitting-området, efterhånden som elementet flyttes og giver plads til et nyt element. Genstøbning sker ved at berørte betonområder udpeget i kvalitetskontrollen fjernes med for eksempel hydroblasting og derefter genstøbes. Der kan som oftest ikke skæres områder ud, fordi det vil beskadige armeringen.

En typisk sådan betongenstøbning kan være fra 10 cm op til et par meters udbredelse og variere i dybden fra få cm til hele vejen igennem elementet. Betonområderne genstøbes ved brug af midlertidige forme, typisk af coated krydsfiner, der påsættes det specifikke område på elementet, der skal genstøbes og fjernes igen efter støbning.

Støbepladerne bliver smurt med det bionedbrydelige slip-middel anvendt i den øvrige del af fabrikken, men der vil ikke ske vask af forme efterfølgende. Disse kan ikke genbruges og bortskaffes i stedet som affald efter hver støbning. Der er således ikke væsentlig risiko for udvaskning af slipmidlet til overfladevandet.

Eventuelt spild af beton-masse er begrænset, og kan opsamles, når det hærdet.

Outfitting-områderne er befæstede med afledning af overfladevandet til regnvandsbassiner og bundfældning, og efterfølgende udledning via oliebenzinudskiller til Femern Bælt sådan som miljøgodkendelsen kræver.

Øvre bassiner

Der har vist sig behov for en del mere kørsel og trafik i de øvre bassiner end oprindeligt forventet. Der er tale om for eksempel mandskabsvogne, håndværker-varevogne, lifte, kraner og trucks.

Der er som for alle køretøjer og materiale der anvender hydraulisk teknologi, en vis risiko for spild af brændstof, olie eller hydraulik. Der er derfor opsugningsmateriale let tilgængelig, som den gældende miljøgodkendelse også stiller vilkår om (vilkår 8.19).

Ligeledes var behovet for udskillere i de øvre bassiner vurderet som minimalt, da der ikke var forventet særligt behov for meget kørende materiel ud over skidding beams-systemet.

Ud over øget kørsel/trafik har det vist sig, at der for at sikre fremdrift i produktionen og give plads til næste element på linjen, kan være behov for at skubbe et element videre til øvre bassin, inden genstøbning af betonområder er sket. Det vil sige, at afgrænsede betonområder på elementet er blevet fjernet i outfitting-området, men at genstøbningen udføres i øvre bassin. Det forventes, at der generelt bliver behov for sjældnere og sjældnere genstøbningsarbejde, efterhånden som der oparbejdes erfaring med den særlige elementstøbeteknik. Genstøbningsarbejde kan dog ikke helt udelukkes, og da fremdriften i Femern-projektet i høj grad afhænger af fabrikkens leverancer, er det nødvendigt at sikre muligheden for at lade genstøbning "følge med ud" af outfitting-områderne til øvre bassiner i et vist omfang uanset erfaringsopbygning.

Genstøbning er en aktivitet, der i miljørisiko ligner de allerede godkendte aktiviteter i outfitting-området, og som kræver at overfladevand herfra håndteres uden risiko for at forurene jord, grundvand eller overfladevand. Det vil sige at overfladevandshåndteringen i øvre bassiner skal ske, som det sker i outfitting-områderne.

Andre out-fitting aktiviteter, der kan følge med ud i øvre bassin, er først og fremmest outfitting inde i tunnelrørene, før skot sættes op, som lukker elementernes tunnelrør af så elementet kan flyde. Arbejdet foregår således på betonunderlag og overdækket, og vil ikke have betydning for overfladevandet.

Opgradering af overfladevandshåndtering

De øvre bassiner fungerer som tørdokke, hvor havvand kan holdes inde, mens der arbejdes på et element, og hvor havvand lukkes ind, når et element skal bugseres ud i havet. Mens bassinet er tørlagt bortledes regnvand ved at dræn under fibertex og grusbelægning leder overfladevand til pumpestation, som pumper overfladevandet til havet mens bassinet skal være tørt. Kørearealer og visse steder i bassinet er der støbt beton eller asfalt over grusbelægningen for ekstra kørefasthed.

Det var i projekteringen af afvanding fra de øvre bassiner vurderet umuligt at etablere traditionelle oliebenzinudskillere, fordi bassinerne jævnligt skal fyldes med havvand, når elementer skal skibes ud. Herved ville udskilleranlæggene ligeledes blive oversvømmet.

I forbindelse med behovet for ændrede aktiviteter, er det dog undersøgt, at der – mens bassinet er tørlagt og der arbejdes på et element – er plads til en mobil oliebenzinudskiller i containerløsning som kan kobles på eksisterende vandaflledningssystem i bassinerne. Containerløsningen kan kobles fra og hejses ud af bassinet som alt øvrigt udstyr, når bassinet skal fyldes med havvand ved udskibning af et element. Da det har vist sig muligt at koble oliebenzinudskiller på udløbene fra øvre bassiner, ønsker FLC at etablere disse (udløb fra grønne områder i Figur 2), sådan som det er påkrævet for øvrige udløb (udløb fra gule områder i Figur 2).

Det kan ikke fuldstændig udelukkes, at der kan være udvandede rester af oliespil i dræne, når bassinet fyldes med havvand ved udskibning. Dette vil dog være minimalt, da drænpumpen pumper gennem den mobile udskiller helt frem til udskilleren hæves. På de tidspunkt er alt materiel også fjernet fra bassinet. Det vurderes, at den indkommende

mængde havvand er så stor, og eventuelle rester så minimale, at koncentrationen af olie bliver uvæsentlig, og sandsynligvis under måletekniske detektionsgrænser.

En ajourført situationsplan over overfladevandshåndteringen fremgår af Bilag 1, mens detalje-tegning af hver tilkobling på overfladevandsystemet ses i bilag 2. Dimensioneringen tager højde for, at overfladevandet fra hvert af de 3 øvre bassiner skal pumpes til containerløsningen, og følger den rapport fra rådgivningsfirmaet MOE, som ligger til grund for hele fabrikkens overfladevandshåndtering (se bilag 3).

Miljøgodkendelsens vilkår om monitoring og drift af oliebenzinudskillere (vilkår 8.12, 8.13, 8.16, 8.18) er formuleret, så de også vil kunne dække de ønskede mobile oliebenzinudskillere. Der vil således være tale om udskillere, hvor der foreligger driftsvejledning fra leverandør, hvor adgangen vil være uhindret i forhold til drift, inspektion og eventuel prøvetagning, hvor tømning kan ske når 75% af opsamlingskapaciteten er opbrugt, sådan som for de eksisterende udskillere.

Ajourførte procedurer

Hvis de ønskede ændringer godkendes af kommunen, vil FLC ajourføre (jævnfør vilkår 1.7 i miljøgodkendelsen) sine planer og procedurer for drift af oliebenzinudskillere og for spildhåndtering både i øvre bassiner og outfitting-områder. Ajourførte planer og procedurer fremsendes til Lolland Kommune i henhold til vilkår 1.7.

6. Sammenfatning og konklusion

FLC har behov for at kunne lade mere genstøbningsarbejde på betonelementerne følge med ud af outfitting-områderne til øvre bassiner, særligt beton-genstøbning, og har behov for at have flere køretøjer og udstyr i bassinerne, mens der arbejdes på afsluttende arbejde på et element. Forventeligt bliver behovet for beton-genstøbning minimalt, men vil ikke fuldstændigt kunne udelukkes.

Der vil ikke være aktiviteter i de øvre bassiner, der kan give overfladevandet en anden karakter end oprindeligt forudsat for outfittingområderne i miljøgodkendelsen, og der ønskes opgradering af overfladevandshåndteringen i øvre bassiner til samme standard som for outfitting-områderne, dvs. med oliebenzinudskillere.

Miljøgodkendelsens eksisterende vilkår forventes at kunne regulere ændringerne.

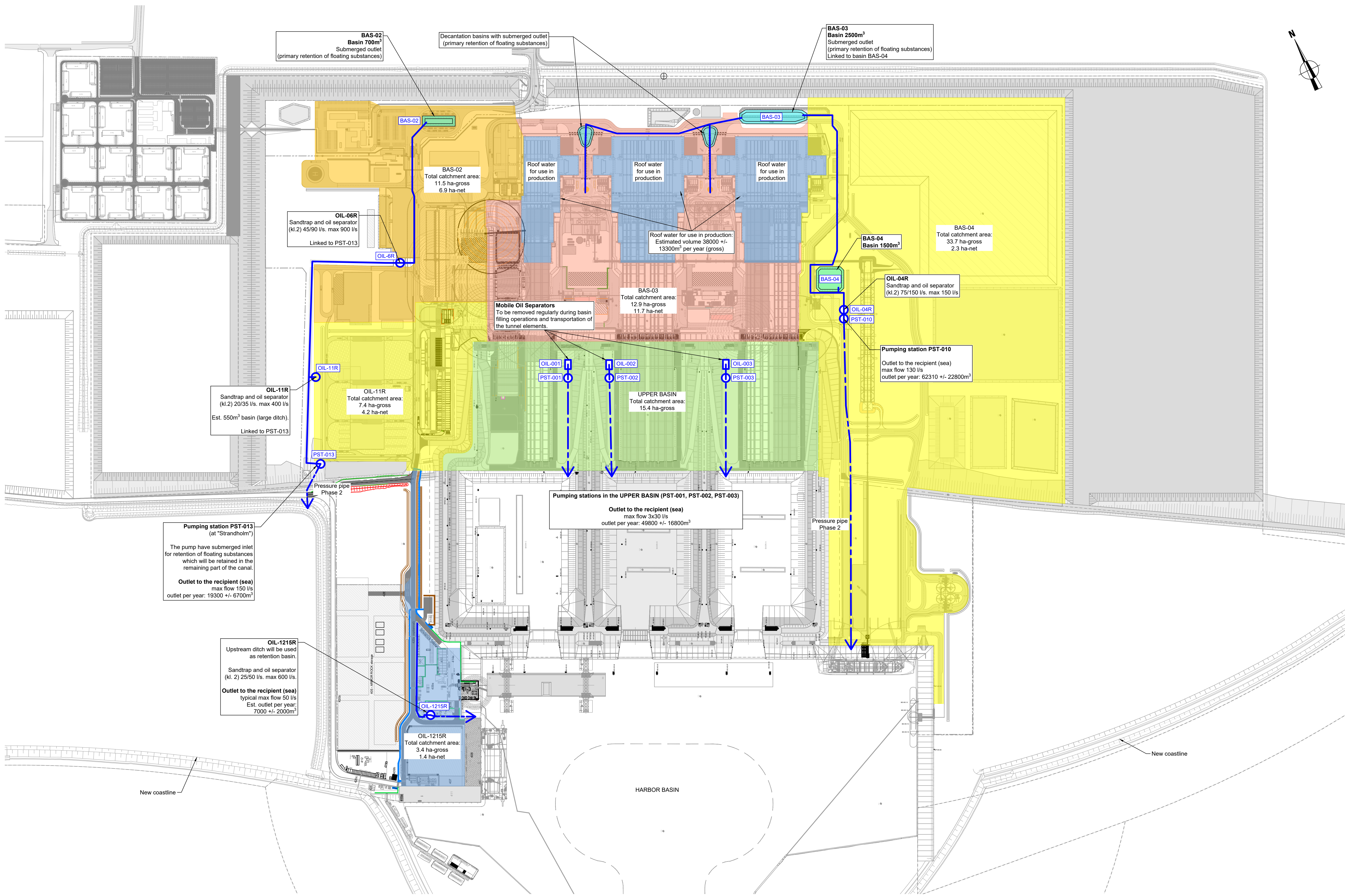
7. Bilagsliste

Bilag 1 - Ajourført situationsplan over overfladevandshåndteringen (fil-navn: "Flow diagram PFA_2025-02-20.pdf")

Bilag 2: detalje-tegning af hver tilkobling på overfladevandsystemet (fil-navn: "PST Upper Basins_2025-02-20.pdf")

Bilag 3 – MOE rapport med dimensioneringsgrundlag for hele fabrikkens overfladevandshåndtering (fil-navn: "TUX REP-PCA-GE-DES-MOE-700005-0B (2).pdf").

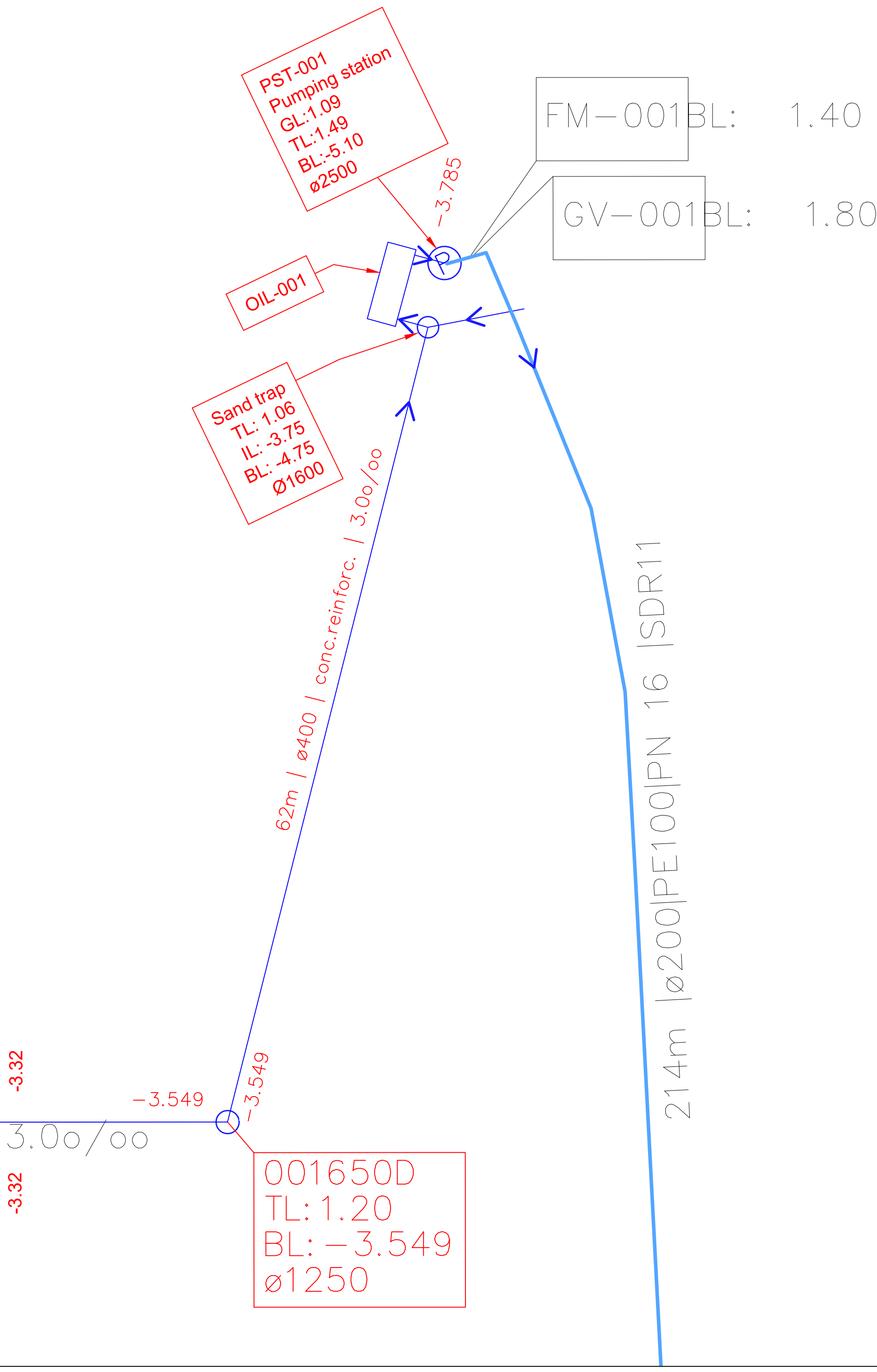
Bilag 1: Flow diagram PFA

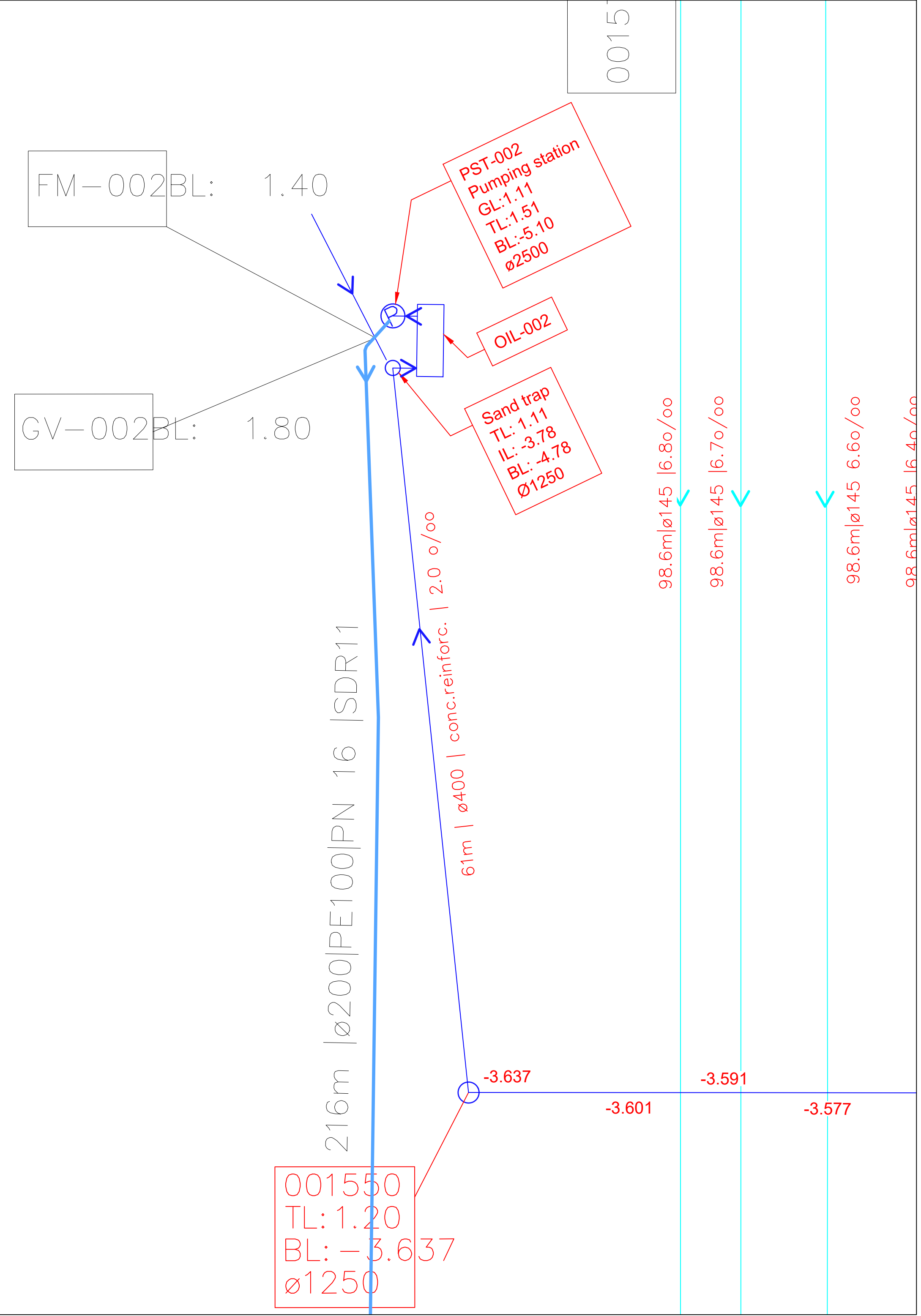


Flow diagram PFA

FLC_2025-02-20

Bilag 2: PST Upper Basins





217m |ø200|PE100|PN 16 |SDR11

FM-003BL: 1.40

GV-003BL: 1.80

001450D TL: 1.20BL: -3.4

-3.40
-3.40

-3.23 -3.23

98.8m|ø145 |4.40/00

63m | ø400 | conc.reinforc. | 4.70/00

Sand trap
TL: 1.06
IL: -3.70
BL: -4.70
Ø1250

OIL-002

PST-003
Pumping station
GL:1.08
TL:1.48
BL:-5.10
ø2500

001

Bilag 3: TUX-REP-PCA-GE-DES-MOE-700005-0B

FEHMARNBELT FIXED LINK

Femern
Sund ≈ Bælt



PFA & VILLAGE –
DRAINAGE DESIGN REPORT

IFI
08.03.2022

Int. Rev.	Issuance date	Revision description
0A	23-11-2020	FLC review
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1. OVERALL DESIGN

1.1 Description of design opportunities and restraints

The flat and low topography that characterizes the entire area requires the use of pumps for dewatering the PFA. By combining pumps with retention basins, the pumping capacities can be lowered significantly.

The surface in the upper basin and the curing and initial outfitting areas will be made, partly of stone/gravel and sand. The underground consists of clay till. This structure provides the opportunity to use the porosity in the gravel/stone/sand for retention of water. The groundwater level in the same areas are not allowed to exceed -2,50 m (Ref: TUX-DBR-PFA-GE-GE-DRA-FLC-000015-0A).

It is allowed to use the remaining part of the channel (upstream of the old pumping station "Strandholm") for water storage purposes. With the exception of the Village outlet which are throttled to 4 l/s/ha, it is not allowed to use the newly remodelled channel (and the new Strandholm Pumping Station).

The estimated discharge volumes and max. flow for the drained area in the PFA is shown in the attached Appendix 1.

The upper basin and the lower basin of the PFA, will be protected against groundwater penetration by a sheet pile wall. There will be drainwater inflow to the curing hall and the initial outfitting area (situated at level -1.6 m) from the surrounding areas (level 0 – 0.3 meter). The influx of water from the sea is roughly estimated, by use of the specified values for the hydraulic conductivity (k_H) and the porosity (p) of the existing soil layer (cf. the Geotechnical surveys for the PFA area, Ref: TUX-BOD-PFA-GE-GE-GEO-FLC-000003-1B).

Handling of roof water for recycling and use in production, is not covered by this project proposal, nevertheless, in case of full basin for recycling water, the roof water must be diverted to recipient. Therefore, the proposed rain and drainage water system (pipes and basin and pumps) have been designed to handle this situation.

Design of the temporary ground- and surface water management during construction phase is not a part of the present scope of design. This also applies to dewatering of the of harbour area.

1.2 Design data and method

1.2.1 Catchments

Catchment areas for use in the hydraulic model, have been formed in compliance with the building plan for the PFA: TUX-DWG-PFA-GE-GE-DES-MOE-211100

Run-off coefficient (Ref: TUX-BOD-PFA-GE-GE-DRA-COW-000003-0);

- 100% for Roof and other impermeable surfaces
- 80% for gravel covered work areas
- 10% for soil covered areas
- 5 % for grass paved areas

The Catchment polygons is recorded manually in the software DanDasGraf in appropriate sizes, corresponding to the location of the receiving main sewer pipe.



All catchments; size, run-off coefficient and connection to drainage system, are documentable (Ref: Appendix 1).

1.2.2 Porosity and hydraulic conductivity

The porosity for the existing soil (sand) is 30% and the hydraulic conductivity 10^{-4} m/s (Ref: TUX_BOD_PFA_GE_GE_GEO_FLC_000003, section 8).

In the upper basin and the curing and initial outfitting areas, a porosity of 40% is used. With an estimated top-layer thickness of 0,60 meter gravel/crushed stone, the porosity volume is roughly 240 l/m² or 240 mm of rain. This porosity has been taken into account.

1.2.3 Level in channel (Strandholm old)

According to data and drawings concerning the “Strandholm” old pumping station, the normal summer water level in the channels are -1,50 (DNN) translated to Fehmarn Belt level system, this is approximately -1,40 m. This level is used in the hydraulic calculations since pipe dimensioning rain events, typically happens in the summer period.

1.2.4 Basins and pumps

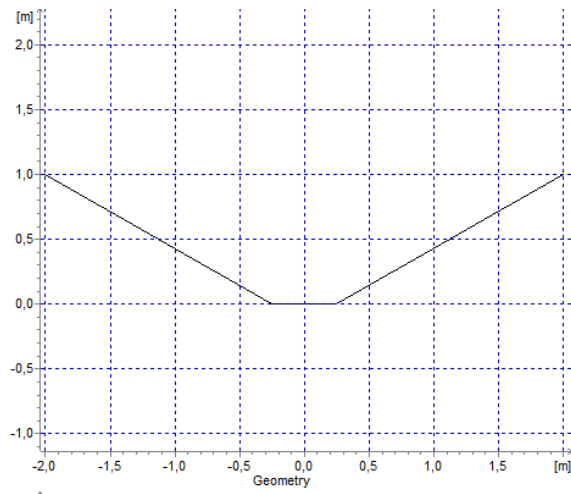
Basin volumes and pump capacities have been determined by use of the software SAMBA (Simple model for computation of basin volumes and overflow statistics etc.). The rain series used is from Naestved (period 1979 – 2015). It consists of nearly 6000 single rain events. The statistically processing of the resulting result files (where mixed/coupled events are rather common) results in selection of basin volumes (for a given pump capacity) as a function of return period (T) which in the present case is 5 year. The design maximum waterlevel in all basins is > 0,90 m below surrounding road level. In case of rain events exceeding a 5 year return period, water will rise in the basins until it reaches the edge of the basin and from there overflow to the surrounding areas. The latter, however, is expected to occur only extremely rarely. The results are presented in section 1.3.1.

The Naestved rainserie has also been used to estimate the annual emissions to the recipient (the Fehmarnbelt). From SAMBA the results are transferred to the Mike Urban model for detailed/advanced pipe dimensioning/analysis.

1.2.5 Ditches

The drainage system will consist of both pipes and ditches. All ditches are 0,5 m wide in the bottom and designed with a slope of 2H/1V. For safety purposes, ditches are parallel offset from the roads. The basins in the area are all open retention basins. Lining with clay till can be used if the basins should need more stability.

All ditches, with few exceptions are suggested made with a profile like shown below:



Figur 1 Profile, small ditch . Slope angel 2H/1V. The bottom of the ditch is 0.5 m.

1.2.6 Pipes and flooding

Pipes are dimensioned, provisionally, by use of a simple 10 min. rain-intensity of 110 l/s/ha. By use of a hydrodynamic model (Mike Urban) and a 5-year CDS rain (Chicago design storm), the dimensions have subsequently been corrected in order to fulfil a functional requirement of water rise not above terrain.

The robustness is assessed using a 50-year event. Any major flooding occurring is assessed in relation to the extend and volume of the flooding and where it occurs.

The rain-events are designed using the following spreadsheet from the Danish wastewater committee; "SVK skrift 30 Regionalregnrække_ver_4_1.xls". Location Rødby (x,y: 653501, 6057925) annual rain depth; 610 mm. Safety- and climate factors are not included. The duration is set to 3 hours, and time resolution to 10 min.



The intensity-duration-frequency (IDF) curves, is the mathematical function that relates to rainfall intensity with its duration and frequency of occurrence. :

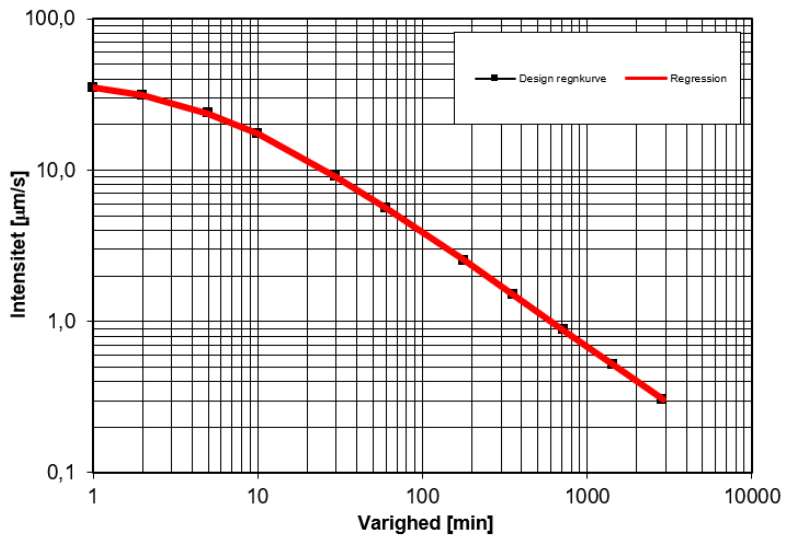


Figure 1 IDF curve (Regnkurve) for T=5 year.

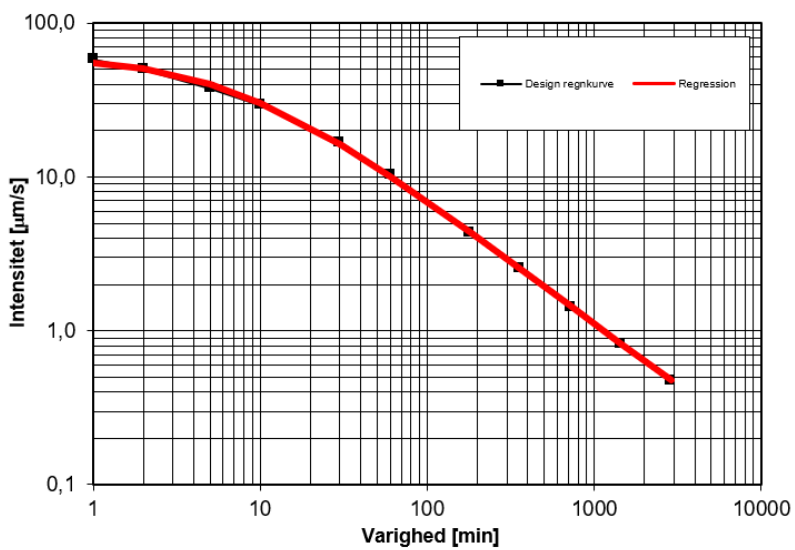


Figure 2 IDF curve (Regnkurve) for T=50 year.



And the CDS rain;

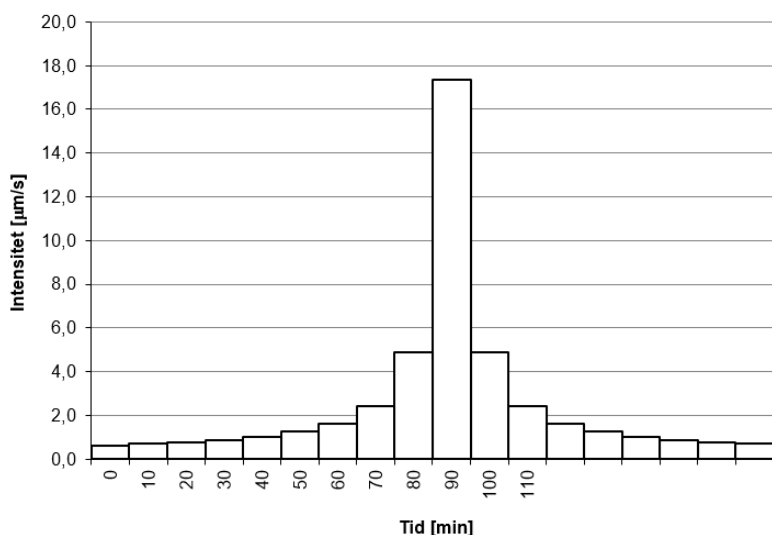


Figure 3 CDS rain T=5 year. No safety- or climate factors (1 µm/s = 10 l/s/ha).

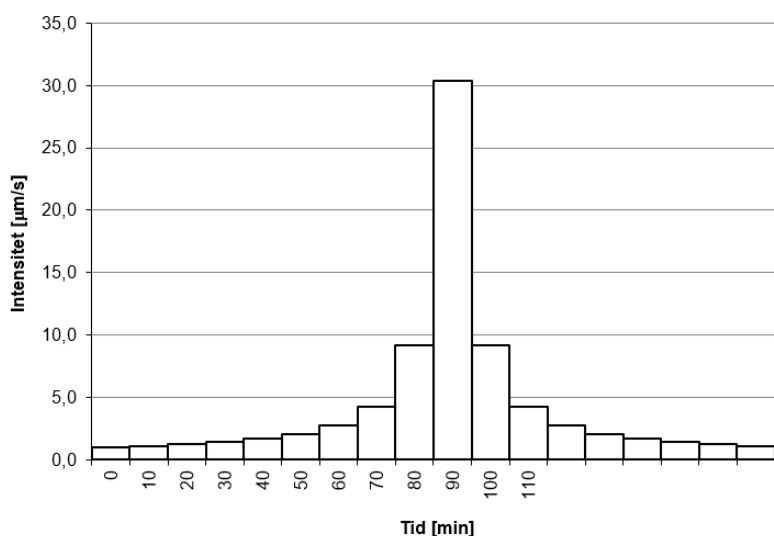


Figure 4 CDS rain T=50 year. No safety- or climate factors (1 µm/s = 10 l/s/ha).

1.3 Hydraulic calculations, results and recommendations

The overall basic principle/design for handling of rain- and drainage water in the entire PFA area and calculated/suggested basin volumes and pump capacities, are shown in (Ref: TUX-DWG-PFA-GE-GE-DRA-MOE-190101-0A) and in the drawings (Ref: TUX-DWG-PFA-GE-GE-DRA-MOE-110101-0A, TUX-DWG-PFA-GE-GE-DRA-MOE-140101-0A and TUX-DWG-PFA-GE-GE-DRA-MOE-150101-0A), showing the flowchart and the plan view and typical cross section and longitudinal section.



Actual flooding calculations requires a terrain model with hollows and flow paths, which occurs in natural terrain. In this case the surface level is mostly +0,20 m. The lowest areas that need to be drained are at -1,60 m.

There is no major flooding above terrain for a 5 year period.

1.3.1 T=50 Flooding, PFA

In the area surrounding the Main Store (210)¹, the Electricity distribution and the parking area next to FLC Main office (215), it is recommended to model the terrain with slightly sloping towards the Basin. The flooding volume calculated (T=50 year) is about 300 m³.

Inside the Batching Plant Area (BPA) between Line 4 and 5, some minor flooding can occur (around 80 m³), considering an area of roughly 3000 m², this flooding will be only a few cm. Nevertheless, it is recommended to model the terrain with slightly sloping towards the Skidding beam area where sufficient retention volume is present. And again, ensure essential installations from flooding.

Outside the BPA (of line 4+5), that is, on the other side of the sheet pile wall area, on the traffic area next to the Labour facilities and Rebar Storage (101), flooding of roughly 110 m³ have been calculated. Considering an area of roughly 1500 m², this flooding will be 7 cm.

2. GROUNDWATER DRAINAGE

In the BoD Water Management (Ref: TUX-BOD-PFA-GE-GE-DRA-COW-000003-1B) it is stated that the ground water drainage shall be designed to lower the ground water below level -0,60 or 0,90 m below finished surface areas, whichever is the lowest.

The ground water level in the area is app. 0,3-0,8 m below the existing surface (Ref: TUX-BOD-PFA-GE-GE-GEO-FLC-000003-1). Most of the ground water is from the upper marine sand layers.

2.1 PFA

The lowering will be performed using traditional drainage pipes combined with ditches in both the paved/unpaved areas, and under the production area, i.e. Skidding Beam Area (SBA). Subsurface top slotted drainpipes will be placed between each foundation point under the skidding beam and connected to a ø400 collector pipe which leads the water to a pumpingstation that pumps the water to the maindrainage system.

Furthermore it is decided to install a drainage system that consists of ditches in the Eastern Land Area.

The drainage pipes used will be min. ø145 mm. The pipes will be placed in filter material, i.e. gravel, sand or crushed stones. The drainage pipes will be connected to the pumping stations with a collector pipe. Maintenance of the drain systems in the skidding beam area should only be performed when nessecary. The top layer of filter material of the sump pit will be regularly inspected and replaced as necessary if obstructed by sand.

¹ Numbers in () refers to building/area number on Ref: TUX-DWG-PFA-AL-AL-GEN-FLC-002005-2



In the skidding beam area, the ground water level must not exceed level -2,50 m. Drainage pipe level typically – 3,5 m. The levels has been acquired to ensure sufficient gravitational slope om the drains.

2.1.1 Influx from the sea and channel, estimated

Estimation of water inflow to the curing hall and the initial outfitting area from the surrounding areas:

Influx can occur from two “sources”: **A)** from the “new Strandholm” channel north of the PFA, and **B)** from the sea.

According to informations recieved regarding the new Strandholm pumping station, the highest operational level in the channel (pumping start level) is -1,40 m. According to tide tables, the tide varies only a few cm around 0 at Roedby Harbour. The calculations below are “worst case” calculations (highest gradient).

A)

Estimated Influx at line 1-6 (skidding beam area) from the north side:

- Distance to channel: approx. 200 m
- Influx width: 645 m (the productionslines from west to east)
- Channel water level: -1,4 m
- Drainage pipe depth in upper basin: ~ - 3,5 m
- Gradient (Channel water level: -1,4 m, drainage pipe level - 3.5) $i = 2,1 \text{ m} : 200 \text{ m} = 0.011 \text{ m/m}$
- Hydraulic conductivity; $k_H = 10^{-4} \text{ m/s}$
- Porosity, $p = 0,30$

Pore water velocity = $k_H \cdot i / p \rightarrow 10^{-4} \text{ m/s} \cdot 0.011 \text{ m/m} : 0.30 = 3.7 \cdot 10^{-6} \text{ m/s}$ (~ 115 m/year).

Applied over the entire depth: $2,1 \text{ m} \cdot 3.7 \cdot 10^{-6} \text{ m/s} = 0,8 \cdot 10^{-5} \text{ m}^2/\text{s}$

Influx width, summation; $645 \text{ m} \cdot 0,8 \cdot 10^{-5} \text{ m}^2/\text{s} = 0,005 \text{ m}^3/\text{s} \rightarrow 5 \text{ l/s}$.

B)

Estimated Influx at line 1 and 6 (skidding beam area) from east and west side of the production area:

- Distance to existing shoreline: approx. 350 m
- Influx width: 2 x 450 m (approx. distance from sheet pile to new channel)
- Sea level: 0 m
- Drainage pipe depth in upper basin: ~ - 3,5 m
- Gradient (sea level 0.0, drainage pipe level - 3.5), $i : 3.5/350 = 0.01 \text{ m/m}$
- Hydraulic conductivity; $k_H = 10^{-4} \text{ m/s}$
- Porosity, $p = 0,30$

Pore water velocity = $k_H \cdot i / p \rightarrow 10^{-4} \text{ m/s} \times 0.01 \text{ m/m} : 0.30 = 3.3 \cdot 10^{-6} \text{ m/s}$ (~ 100 m/year).

Applied over the entire depth: $3.5 \text{ m} \cdot 3.3 \cdot 10^{-6} \text{ m/s} = 1,2 \cdot 10^{-5} \text{ m}^2/\text{s}$

Influx width, summation: 2 x 450 m; $900 \text{ m} \cdot 1,2 \cdot 10^{-5} \text{ m}^2/\text{s} = 0,0108 \text{ m}^3/\text{s} \rightarrow \text{ca. } 11 \text{ l/s}$.

The above calcutaions (A+B) is an average. The variation is +/- 50%.

Influx from the sea will most likely reduce the maximum available gradient from the new channel to the skidding beam area. The influx from the channel will therefore be less than 5 l/s.



2.2 Village

In the village the drainage will occur using the porosity volume underneath the parking areas and by construction of small ponds within each residential area. The slopes of the ponds will be towards the middle of each residential area, where there is an "open well". The principle is shown in (Ref: TUX-DWG-CAM-GE-GE-DES-MOE-620104-0A). The water will be led to the open ditch/basin by gravitational force.

2.2.1 Influx from the sea and channel, estimated

According to informations recieved regarding the new Strandholm pumping station, the highest operational level in the channel (pumping start level) is -1,40 m.

In the Village the bottom level in the basins is -1,35 m. Influx from the new channel to basin will therefore not occur, under normal conditions. It is assumed that the channel (i.e. the new pumping station) is able to keep the groundwater level in the Village area below or equal to -1,40.

3. BASINS

3.1 PFA

The basins in the area are all open retention basins. Lining with clay till can be used if the basins should need more stability. The thickness of the clay till is expected to be 1,0 m. An example of basin with sand trap and submerged outlet is shown in (Ref: TUX-DWG-PFA-GE-GE-DRA-MOE-120101-0A). Location and data for basins is shown in Appendix 1.

There will be two kinds of basins:

- With sand trap and submerged outlet
- With sand trap, submerged outlet and pumping station

The basin placed in the Eastern Land Area will be excavated in marine sand and gyttja. Therefore the stability of the construction pit must be secured while excavating.

3.2 Village

In the Village area two basins have been designed, but have been further divided of roughly the same size due to lack of space. The northern bassin have a total designvolume of 500 m³ and the southern bassin have a total designvolume of 300 m³. After the basin there will be a sand trap, oil separator and regulator before run off to the discharge points, where the water will be led to the new Strandholm Pumping Station. See (Ref: TUX-DWG-CAM-GE-GE-DRA-MOE-190101-0A).

3.3 Oilseparator

Oil separators will be installed after sandtrap and before discharge, except from outlets from upper bassin to lower basin. All oil separators will have a built in by-pass function for discharge, if the estimated max flow should be exceeded. Oil separator could be like IBF Unisep-Lamella separator se figure below. (Ref: <https://www.ibf.dk/da/produktoversigt-unisep-lameludskillere>)

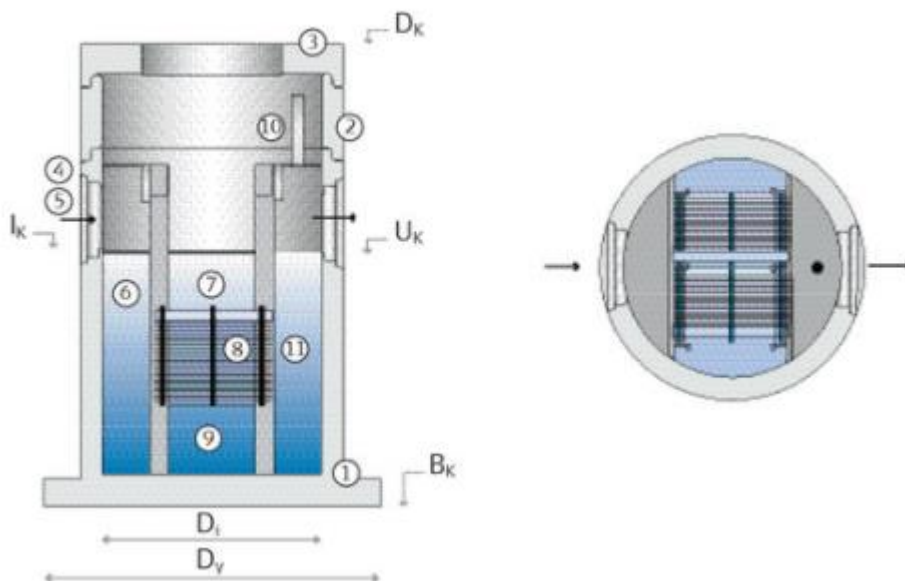


Figure 5 Oil separator (IBF Unisep-Lamella seperator)

The following oil separators are chosen :

Village:

NAME	DIMENSION Diameter	CALCULATED MAX. FLOW* (L/S)	CAPACITY** (CLASS 2)	CAPACITY** (CLASS 1)
OIL_SEP_01	Ø1500	23	35	20
OIL_SEP_02	Ø1250	13	15	10

PFA:

NAME	DIMENSION Diameter	CALCULATED MAX. FLOW* (L/S)	CAPACITY** (CLASS 2)	CAPACITY** (CLASS 1)
OIL-4R	ø3000	150	150	75
OIL-6R	ø2500	90	90	45
OIL-1215R	ø2000	30	35	20
OIL-11R	ø1500	30	35	20

*) According to hydraulic model

**) According to DS/EN 858-1, Class 1=5mg/l. Class 2= 100mg/l.



Which means that the chosen oilseparators will function as a class 1 oilseparator up to 50 % (or more), based on the calculated max flow. The oilseparators have to be regularly inspected and emptied according to suppliers recommendations.

4. MATERIALS

Beneath are the materials which are proposed to be used in the project. Material recyclability are especially important in this project, due to the relative short time period where the drainage system will be used before dismantling. Particularly regarding PVC – PVC generates toxic gases and particules when exposed to the sun or is burned. It is therefore important that the PVC used for drainage pipes remain non toxic, by avoid exposing to high temperature.

Top slotted drainage pipes

- Ø80-200 mm

Main drainage pipes, collector pipes

- ø200 – ø800 corrugated PP
- ø400 – ø800 concrete

Reinforced pipes

- ø400 reinforced concrete

Wells:

- ø315 PP/PVC/PE
- Ø600 PP/PVC/PE
- ø1250 - ø2000 concrete

4.1 Pipes

Stones and gravel materials must be in accordance with current EN / DS standards

Materials, installation and testing requirements must follow DS/EN 1433:2006.

Concrete pipes must be CE marked and meet the requirements of DS / EN 1916: 2003, DS / EN 2420: 2003, DS / RN 1917: 2003 and DS / EN 2420: 2003. Special attention must be taken to the pipes that crosses below the skidding beams. Those pipes have to be made of reinforced concrete to withstand the pressure from the tunnel elements. Reinforced concrete pipes will in addition apply in areas with insufficient soil cover and high load. It is assessed that there should be stricter requirements for backfilling around the reinforced concrete pipes, and thus also stricter supervision.

The documentation for the above must be written in Danish / English and be the result of completed tests or by membership of a voluntary control scheme such as the Concrete Products Control.

Plastic pipes and fittings as well as transitions etc. for gravity lines must meet the requirements of the INSTA-CERT certification (Nordic Poly Mark). Alternatively, they must be VA-approved, class SN8.

Drainage must be performed in accordance with DS 432 including the norms, standards, laws, executive orders, circuars and publications associated with Annex C (including but not limited to DS430,DS437,DS455 and DS475).



4.1.1 Smaller pipes

Smaller pipes (<Ø200 mm) are proposed to be made as PVC or PP pipes.

Approval EN 1401 for PVC and EN 1852 for PP and Nordic Poly Mark.

4.1.2 Larger pipes

Larger pipes (>Ø200mm) are proposed to be made either as PP, PE, PVC, concrete or reinforced concrete.

Approval EN 1401 for PVC and EN 1852 for PP and DS/EN 12201-1 for PE and Nordic Poly Mark

4.2 Wells

Wells between 315 – 600 are made of corrugated plastic. Larger wells above ø600 are made of concrete made with prefabricated bottom and led to the ground using well rings and cones with a wall thickness of 100 mm. Floating frame in SG iron on asphalt, else firm frame and carriage cover in SG iron. Approved load min. 40 tons if they are placed in traffic areas otherwise a min. load of 12,5 tons should be sufficient.

4.3 Gullies

Gullies are proposed as Ø315 mm corrugated wells with sand traps of 70 liters.

Frames and grills in SG iron, 40 tons approved load.

Floating frames in asphalt areas and firm frames in other areas.

5. SAFETY IN DESIGN

Safety issues have been considered throughout the drainage design process to try to reduce all risks during construction and operation. As often as possible, we have designed the drainage system to accommodate a situation where it is possible to inspect and maintain the system without disturbing the future traffic. For a detailed overview of the all safety issues considered, see risk report (TUX-REP-PCA-GE-GE-DES-MOE-300003).

6. COMPLIANCE

During the detailed design deviations from the technical specifications, norms and standards have been discussed with FLC. The compliance report is appended to this report.

**Ref:**

TUX-BOD-PFA-GE-GE-DRA-COW-000003-1

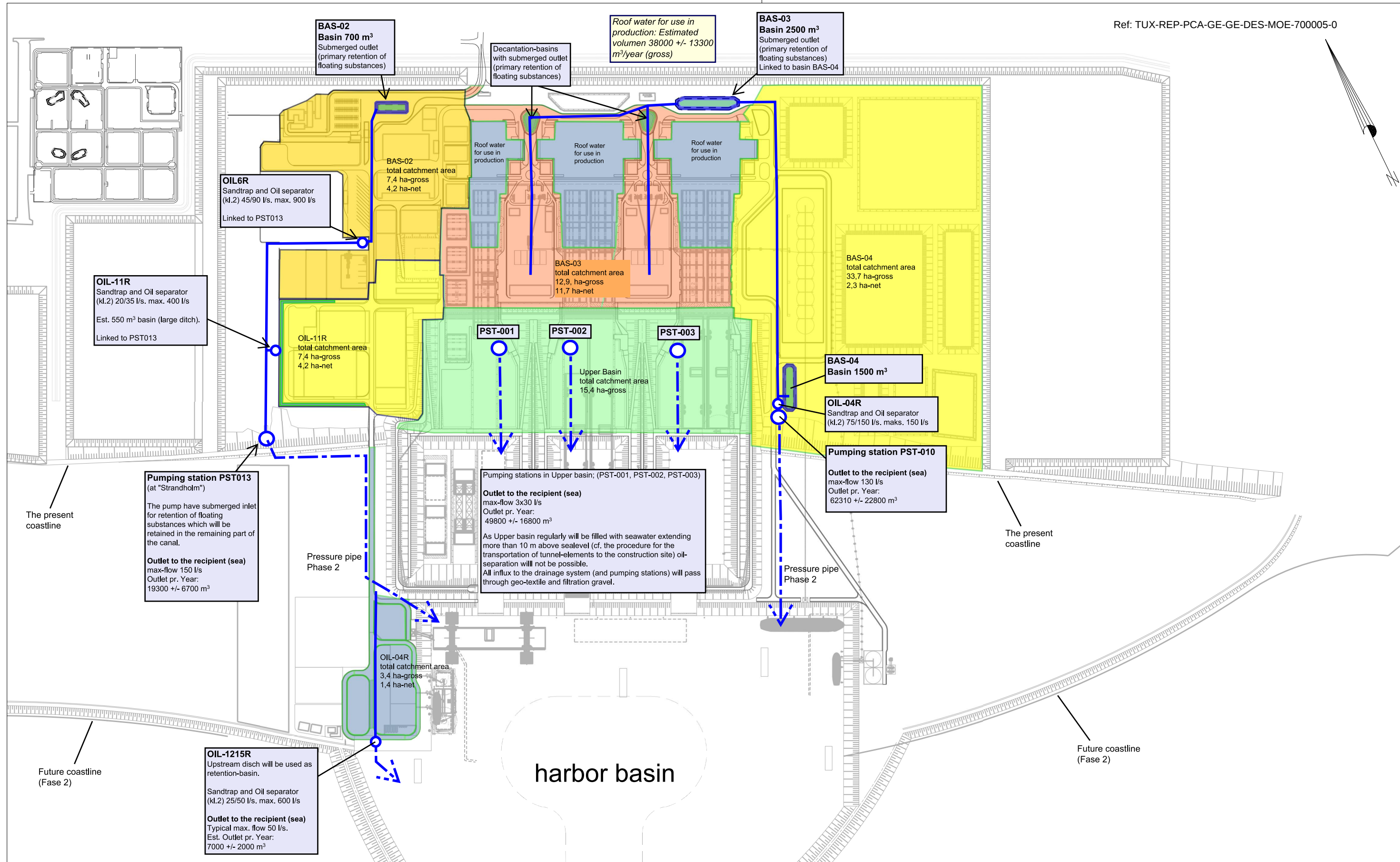
TitleBasis of design. Production Facilities.
Water Management

TUX-BOD-PFA-GE-GE-GEO-FLC-000003-1

Geotechnical Design Report

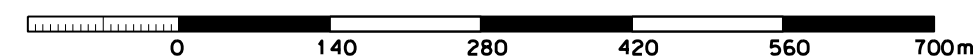
<https://www.ibf.dk/da/produktoversigt-unisep-lameludskillere>

IBF webpage,



APPENDIX 1

Flowdiagram PFA (data and est. yearly outlets incl.)



APPENDIX 2

COMPLIANCE REPORT

Requirement code	Title	Requirement text	Explanation by client	Check	PFA - Drainage
Req-TXX-Vol 5 (MAN-4, § 4.2.1)	Release to Water	Release to water is defined as all substances discharged into watercourses as a result of the actions executed at the Site and the Contractor's Work Area (for example, particles, hazardous chemicals).	Ref. TUX-REP-PCA-GE-GE-DES-MOE-700005, paragraph 3	ALM	Required
Req-TXX-Vol 5 (MAN-4, § 4.2.2.1.1.1)	Release to Water, Waste Water Denmark, Levels of Requirements, Surface Water	The Contractor shall ensure that all runoff water from roofs and paved areas is discharged through a retention basin with a sand trap and an oil separator of a sufficient size before release to the recipient.	Ref. TUX-REP-PCA-GE-GE-DES-MOE-700005, paragraph 1 & 3	ALM	Required
Req-TXX-Vol 5 (MAN-4, § 4.2.2.1.1.2)	Release to Water, Waste Water Denmark, Levels of Requirements, Surface Water	With the exemption of discharges to the sea the Contractor shall not exceed the maximum rate of discharge from all outfalls of 1 l/s/ha.	For Village/Camp 4 l/s/ha is used (documentation: minutes of meeting, design meeting 01, dated 24062020)	ALM	Required
Req-TXX-Vol 5 (MAN-4, § 4.4.1.1)	Materials and Natural Resources, Denmark	The Contractor shall focus on all materials and substances used with regard to the environmental risk and the Contractor shall have a continuous focus on minimising the use of natural resources.	fulfilled, optimization of RDP to minimize quantity of imported materials. (ref. TUX-REP-PCA-GE-GE -DES-MOE-700002, paragraph 3.1.3)	ALM	Required

Requirement code	Title	Requirement text	Explanation by client	Check	PFA - Drainage
Req-TXX-Vol 6 (§ 1.2.1.1)	General Design Requirements, Design, Units, Levels and Co-ordinates	Units shall comply with the International System of Units (SI Units).	Ref. TUX-DWG-CAM-GE-GE-DES-MOE-610204, TUX-DWG-PFA-GE-GE-DES-MOE-210239, TUX-DWG-PFA-GE-GE-DES-MOE-210100 & TUX-DWG-PFA-GE-GE-DES-MOE-610100	ALM	Required
Req-TXX-Vol 6 (§ 1.2.1.3)	General Design Requirements, Design, Units, Levels and Co-ordinates	The coordinate system used throughout the Project shall be the Fehmarnbelt Coordinate System (FCS) as described in GDR 05.0-002 Positioning System - Outline and Guide.	Ref. TUX-DWG-CAM-GE-GE-DES-MOE-610204, TUX-DWG-PFA-GE-GE-DES-MOE-210239, TUX-DWG-PFA-GE-GE-DES-MOE-210100 & TUX-DWG-PFA-GE-GE-DES-MOE-610100	ALM	Required
Req-TXX-Vol 6 (§ 1.2.1.4)	General Design Requirements, Design, Units, Levels and Co-ordinates	All levels in the Design Requirements refer to FCSVR10 unless otherwise indicated.	Ref. TUX-DWG-CAM-GE-GE-DES-MOE-610204, TUX-DWG-PFA-GE-GE-DES-MOE-210239, TUX-DWG-PFA-GE-GE-DES-MOE-210100 & TUX-DWG-PFA-GE-GE-DES-MOE-610100	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.1)	General Design Requirements, Design, Codes and Standards	The design shall be in accordance with all relevant codes and standards including, but not limited to, those listed in Appendix DES-3: Codes and Standards.	Ref. TUX-REP-PCA-GE-GE -DES-MOE-700005, paragraph 4.1 & TUX-REP-PFA-GE-GE -DES-MOE-200003, paragraph 2	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.2)	General Design Requirements, Design, Codes and Standards	Adherence to codes and standards is always subordinate to the explicit requirements appearing in the Contract documents; if there is a conflict between a code or standard and an explicit requirement, the explicit requirement shall prevail.	The order of precedence with respect to codes and standards shall be as follows unless otherwise explicitly stated or clearly follows from the context: (a) standards and codes specifically referred to other than the Eurocodes; (b) Eurocodes; (c) Technical Specifications for Interoperability (TSIs) of the Trans-European rail system (if applicable); (d) other European standards, codes and guidelines not addressed under (a), (b) or (c) above. Where such other European standards, codes and guidelines offer country specific choices and amendments, then the specific Danish choices and amendments shall apply where applicable except for structures designed according to German standards, codes and guidelines. For structures designed according to German standards, codes and guidelines, the specific German choices and amendments shall apply where applicable; (e) norms and standards within the relevant industry which are generally recognised and applied on a global basis; (f) Danish standards, codes and guidelines except for the areas on Fehmarn. For the areas on Fehmarn the German standards, codes and guidelines apply unless otherwise indicated in section 2 below; and (g) German standards, codes and guidelines.		Required
Req-TXX-Vol 6 (§ 1.2.2.3)	General Design Requirements, Design, Codes and Standards	In case non-European standards are used in combination with EN standards it shall be verified that these standards are based on the same reliability requirements and management principles. If necessary partial factors shall be derived or corrected in line with the reliability requirements and principles described in annex C of EN 1990.	European Standards with danish editions		Required
Req-TXX-Vol 6 (§ 1.2.2.5)	General Design Requirements, Design, Codes and Standards	The structural design shall be based on the Eurocodes.	§ 1.2.2.1.01 - Each Eurocode is identified by the letters EN and a number. For example EN 1990 is used to refer to Eurocode 0: Basis of Structural Design. Each Eurocode consists of a main document, related amendments and corrigenda.		Required
Req-TXX-Vol 6 (§ 1.2.2.1.01)	General Design Requirements, Design, Codes and Standards, Eurocodes	Each Eurocode is identified by the letters EN and a number. For example EN 1990 is used to refer to Eurocode 0: Basis of Structural Design. Each Eurocode consists of a main document, related amendments and corrigenda.	European Standards with danish editions	ALM	Required

Req-TXX-Vol 6 (§ 1.2.2.1.02)	General Design Requirements, Design, Codes and Standards, Eurocodes	The Eurocodes listed below shall be adopted for the structural design where applicable and as modified and supplemented by the Project annexes (see Appendix DES-1: Project Annexes) or National annexes. A reference to a Eurocode shall be deemed to also include the related Project annex or National annex: (a) EN 1990 Basis of Structural Design; (b) EN 1991 Actions on Structures; (c) EN 1992 Design of Concrete Structures; (d) EN 1993 Design of Steel Structures; (e) EN 1994 Design of Composite Steel and Concrete Structures; (f) EN 1995 Design of Timber Structures; (g) EN 1996 Design of Masonry Structures; (h) EN 1997 Geotechnical Design; and (i) EN 1999 Design of Aluminium Structures.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.1.03)	General Design Requirements, Design, Codes and Standards, Eurocodes	All structures shall be designed in accordance with the Project annexes unless otherwise indicated in section 1.2.2.2.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.1.04)	General Design Requirements, Design, Codes and Standards, Eurocodes	For the structures to be designed in accordance with the Project annexes, the provisions of EN 1998 need not be observed.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.1.06)	General Design Requirements, Design, Codes and Standards, Eurocodes	The design of structures shall be compliant with the Principles and Application Rules of the Eurocodes.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.1.07)	General Design Requirements, Design, Codes and Standards, Eurocodes	Eurocodes shall be used for the design of all structures including geotechnical and marine works.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.1.10)	General Design Requirements, Design, Codes and Standards, Eurocodes	Subject to the review of the Owner, Eurocodes may be applied to the design of structures where the materials used and / or the actions are outside the scope of the Eurocodes.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.3.1)	General Design Requirements, Design, Codes and Standards, Departures	Departures from Eurocodes and Project annexes are not permitted except as follows: (a) an adverse safety implication or inconsistency has been identified in the application of EN in the design. In such a circumstance, the Contractor shall notify the Owner without delay; (b) an error in the EN has been identified and it is being considered by the European committee for standardization (CEN) for an amendment or corrigendum; or (c) aspects of the design are identified as not being covered by EN.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.3.2)	General Design Requirements, Design, Codes and Standards, Departures	Where a departure from Eurocodes, Project annexes or other adopted standards is required, the Contractor shall seek to obtain approval from the Owner.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.2.3.3)	General Design Requirements, Design, Codes and Standards, Departures	Where new departures from standard are identified during the design process, these shall be submitted to the Owner for review.	European Standards with danish editions	ALM	Required
Req-TXX-Vol 6 (§ 1.2.3.4.2)	General Design Requirements, Design, Climatic Design Data	Design rainfall events shall be derived based on the precipitation data provided in Appendix DES-2: Design Data.	Newer/updated data have been used (SVK Skrift 30 ver.4.1), ref. TUX-REP-PCA-GE-GE -DES-MOE-700005, paragraph 1.2.6	ALM	Required
Req-TXX-Vol 6 (§ 1.3.1.1-a)	General Design Requirements, Durability and Maintenance, General	Full consideration shall be given to the following criteria during the design of the Works: (a) designs, Materials and methods of construction shall be of a recognised and well-proven nature;	Ref. TUX-REP-PCA-GE-GE-DES-MOE-700002,TUX-REP-PCA-GE-GE -DES-MOE-700005 & TUX-REP-PFA-GE-GE -DES-MOE-200003	ALM	Required
Req-TXX-Vol 6 (§ 1.3.1.1-b)	General Design Requirements, Durability and Maintenance, General	(b) the design shall take into account constructional and operational risks, including high marine safety with minimal interference to the ship traffic in the Fehmarnbelt and the risk of damage to the Permanent Works during the Parallel Works construction operations in the Tunnel;	Ref. TUX-REP-PCA-GE-GE-DES-MOE-300003	ALM	Required
Req-TXX-Vol 6 (§ 1.5.1)	General Design Requirements, Loads and Load Combinations	Each structure or structural element shall be able to carry all loads and load combinations in accordance with the principles of EN 1990 and EN 1991.	Ref. TUX-REP-PCA-GE-GE-DES-MOE-700002, paragraph 3	ALM	Required
Req-TXX-Vol 6 (§ 1.6.1.5.2)	General Design Requirements, Structural Analysis, General, Software	The following requirements shall apply to all software, including pre- and post-processors: (a) it shall be of a well-known and proven nature; (b) the most recent versions shall be used; and (c) where relevant, it shall be described how non-linearity and the influence of cracking is taken into account in calculations.	Software used is MMOPP, DanDasGraf, MikeUrban etc. Ref. TUX-REP-PCA-GE-GE-DES-MOE-700002 paragraph 1.2,TUX-REP-PCA-GE-GE -DES-MOE-700005, paragraph 1.2	ALM	Required

Req-TXX-Vol 6 (§ 1.7.1)	General Design Requirements, Design Checking/Supervision	The consequence class and design supervision levels for structures shall be in accordance with Table 1 8, Table 1 9 and Table 1 10.	Ref. TUX-REP-PCA-GE-GE-DES-MOE-701000 & TUX-REP-PCA-GE-GE-DES-MOE-702000	ALM	Required
Req-TXX-Vol 6 (§ 1.7.2)	General Design Requirements, Design Checking/Supervision	For other structures, the consequence class and design supervision levels shall be defined in accordance with the principles of EN1990.	Ref. TUX-REP-PCA-GE-GE-DES-MOE-701000 & TUX-REP-PCA-GE-GE-DES-MOE-702000	ALM	Required
Req-TXX-Vol 6 (§ 1.7.3)	General Design Requirements, Design Checking/Supervision	Details, including organisation, names, qualifications and relevant experience of the proposed independent checkers and third party checkers shall be submitted to the Owner for approval.	Ref. TUX-REP-PCA-GE-GE-DES-MOE-701000 & TUX-REP-PCA-GE-GE-DES-MOE-702000	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.1.1)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Design Phases	The Contractor's design activities shall be divided into the following phases: (a) basic design; (b) detailed design; and (c) as-built design.	a) 'Ref. TUX-REP-PCA-GE-GE-DES-MOE-101000 & TUX-REP-PCA-GE-GE-DES-MOE-102000 + b) 'Ref. TUX-REP-PCA-GE-GE-DES-MOE-701000 & TUX-REP-PCA-GE-GE-DES-MOE-702000	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.1.2)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Design Phases	The Contractor shall provide basic design and detailed design covering all the Permanent and Temporary Works. The design submissions shall cover all aspects of the relevant Facility or Components. The basic design and detailed design submissions for each of the Facilities and Components of the Works shall be submitted in packages as listed in Appendix DES-4: Contractor's Documents for Review.	Ref. TUX-REP-PCA-GE-GE-DES-MOE-700002,TUX-REP-PCA-GE-GE -DES-MOE-700005 & TUX-REP-PFA-GE-GE -DES-MOE-200003	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-a)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include a list of the Facilities or Components into which the Works will be divided for the purposes of detailed design	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-b)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include a review of how the Design Requirements will be achieved;	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-c)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include an explanation of the design opportunities and restraints on the construction methods foreseen at this stage by the Execution Requirements: section 1.4.1 Construction Methods;	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-d)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include design data to support the basic design	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-e)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include a list of design Interfaces with other Facilities or Components and links to the design submission schedule to be prepared by the Contractor;	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-f)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include an assessment of the impact that this design may have on the works of other contractors;	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-g)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include a statement of analysis and design methods to be used in the detailed design;	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-h)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include the parameters and standards to be used in the detailed design;	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-i)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include a list of proposed departures from standards;	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required
Req-TXX-Vol 6 (§ 1.8.1.2.1-j)	General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design	The Contractor shall prepare and submit to the Owner a basic design report to include a list of the third party approvals, permits and consents required and links to the design submission schedule to be prepared by the Contractor;	Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001	ALM	Required

<i>Req-TXX-Vol 6 (§ 1.8.1.2.1-k)</i>	<i>General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design</i>	<i>The Contractor shall prepare and submit to the Owner a basic design report to include a summary of all tests and investigations which have been carried out, or are planned to be carried out, in connection with the design;</i>	<i>Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001</i>	<i>ALM</i>	<i>Required</i>
<i>Req-TXX-Vol 6 (§ 1.8.1.2.1-l)</i>	<i>General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design</i>	<i>The Contractor shall prepare and submit to the Owner a basic design report to include preliminary details of the operation and maintenance manuals and training programme;</i>	<i>Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001</i>	<i>ALM</i>	<i>Required</i>
<i>Req-TXX-Vol 6 (§ 1.8.1.2.1-m)</i>	<i>General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design</i>	<i>The Contractor shall prepare and submit to the Owner a basic design report to include a statement of what the detailed design output will comprise; and</i>	<i>Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001</i>	<i>ALM</i>	<i>Required</i>
<i>Req-TXX-Vol 6 (§ 1.8.1.2.1-n)</i>	<i>General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design</i>	<i>The Contractor shall prepare and submit to the Owner a basic design report to include input to the Contractor's risk register.</i>	<i>Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001</i>	<i>ALM</i>	<i>Required</i>
<i>Req-TXX-Vol 6 (§ 1.8.1.2.4)</i>	<i>General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Basic Design</i>	<i>For each analysis carried out, the Contractor shall submit a table summarising the governing criteria, loading and main results which are relied upon in the basic design to determine the fixed dimensions. The table shall be fully referenced to the original calculation sheets.</i>	<i>Ref. TUX-REP-CAM-GE-GE-DES-MOE-100001,TUX-REP-CAM-GE-GE-DES-MOE-100002, TUX-REP-PFA-GE-GE-DES-MOE-100001, TUX-REP-PFA-GE-GE-DES-MOE-100002, TUX-CAL-PCA-GE-GE-DES-MOE-100001</i>	<i>ALM</i>	<i>Required</i>
<i>Req-TXX-Vol 6 (§ 1.8.1.3.1)</i>	<i>General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Detailed Design</i>	<i>The Contractor shall prepare detailed designs for the Facilities or Components of the Works identified in his basic design.</i>	<i>Detailed design issued 23-11-2020</i>	<i>ALM</i>	<i>Required</i>
<i>Req-TXX-Vol 6 (§ 1.8.1.3.2-a)</i>	<i>General Design Requirements, Contractor's Design Documents for Review, Design Submissions, Detailed Design</i>	<i>For each Facility or Component of the Works, the Contractor shall prepare and submit to the Owner the detailed design documentation to include a description of the Facility or Component;</i>	<i>Ref. TUX-REP-PCA-GE-GE-DES-MOE-700002,TUX-REP-PCA-GE-GE -DES-MOE-700005 & TUX-REP-PFA-GE-GE -DES-MOE-200003</i>	<i>ALM</i>	<i>Required</i>
<i>Req-TUX-Vol7 (§2.3.3.2.3-a)</i>	<i>Drainage, Collection System, strength</i>	<i>The drainage collection system shall have a strength fulfilling EN 1433 load class D400.</i>	<i>Fulfilled, 'Ref. TUX-REP-PCA-GE-GE-DES-MOE-700005, paragraph 4.1</i>	<i>ALM</i>	<i>Required</i>

Requirement code	Title	Requirement text	Explanation by client	Check	PFA - Drainage
Req-TXX-Vol 7 (§ 1.1.2)	Introduction	All products shall be CE marked as required in accordance with the relevant harmonised European standards (EN).	Ref. TUX-REP-PCA-GE-GE -DES-MOE-700005, paragraph 4.1 & TUX-REP-PFA-GE-GE-DES-MOE-200003, paragraph 3	ALM	Required
Req-TXX-Vol 7 (§ 1.1.3)	Introduction	All products used shall have a European Technical Assessment (ETA) wherever relevant.	Ref. TUX-REP-PCA-GE-GE -DES-MOE-700005, paragraph 4.1 & TUX-REP-PFA-GE-GE-DES-MOE-200003, paragraph 3	ALM	Required
Req-TXX-Vol 7 (§ 1.4.1)	Contractor's Documents for Review	As part of the detailed design, Materials specifications for the Facilities as identified in Appendix MAT-1: Contractor's Document for Review shall be prepared and submitted to the Owner for review.	Ref. TUX-REP-PCA-GE-GE -DES-MOE-700005, paragraph 4.1 & TUX-REP-PFA-GE-GE-DES-MOE-200003, paragraph 3	ALM	Required

Requirement code	Title	Requirement text	Explanation by client	Check	PFA - Drainage
Req-TUS-Vol 8 (§ 2.1.2.2.4)	Specific Execution Requirements, Earthworks, Earthworks on Land, Site Clearance	The pumping station and canal located on site sub-area LM03 will be taken out of service but will not be removed by the Owner. The TUN contractor will be given the option to use the pumping station and will be required to demolish it prior to completion of the Works.	OK	ALM	Required
Req-TUN-Vol 8 (§ 2.1.2.2.4)	Specific Execution Requirements, Earthworks, Earthworks on Land, Site Clearance	The pumping station and canal located on the Site will be taken out of service but will not be removed. The pumping station is located on site area LM 03 and the TUN Contractor is free to use the pumping station.	OK	ALM	Required
Req-TUX-Vol 8 (§ 2.1.4.1)	Specific Execution Requirements, Earthworks, Land Drainage	Land drainage of surface water run-off or ground water, within land under the control of the Contractor, shall not be discharged or allowed to pass through land that is not under the control of the Contractor.	Ref. TUX-REP-PCA-GE-GE -DES-MOE-700005, paragraph 1.1	ALM	Required
Req-TUX-Vol 8 (§ 2.1.4.3)	Specific Execution Requirements, Earthworks, Land Drainage	On Lolland the combined maximum rate of discharge from all outfalls shall be 1 l/s/ha. On Fehmarn the combined maximum rate of discharge from all outfalls shall be 0.6 l/s/ha.	For Village/Camp 4 l/s/ha is used (documentation: minutes of meeting, design meeting 01, dated 24062020)	ALM	Required