





**Indicative Layout**

**Solar farm**



**Legend**

-  Personnel fence
-  Fire break/Access track
-  Solar panel arrays
-  Power control equipment

**INGAUDE**

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13/10/2023

Figure 12: Indicative Solar Farm layout



## (c) Work Program Timing

An indicative project schedule, including estimated start dates and durations of regulated activities, is provided in Figure 13 below. The actual timing of the work program activities outlined below may be earlier or later than indicated.

Work Program

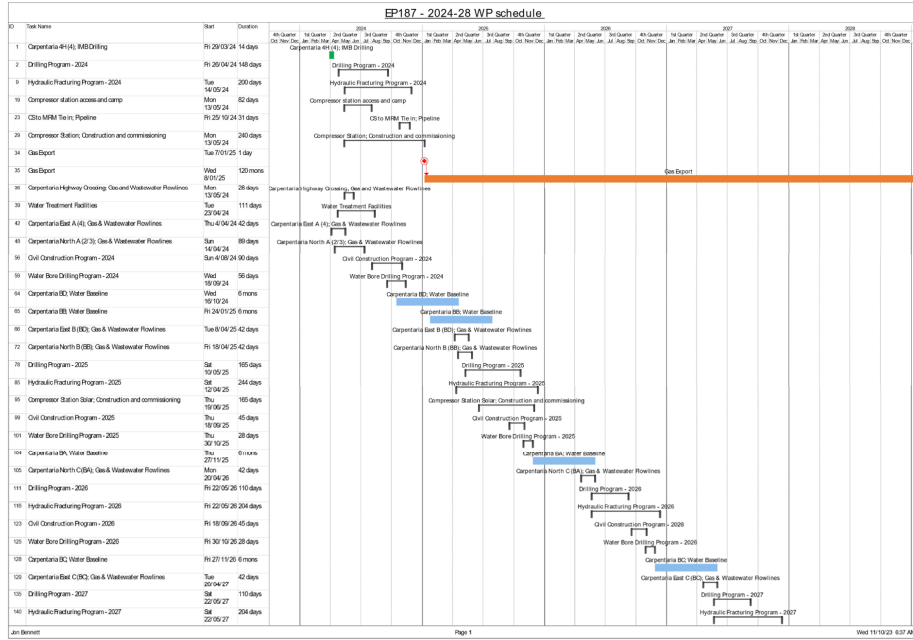


Figure 13: Indicative 2024-28 Work Program Schedule

## (d) Work Program Techniques, infrastructure and equipment

The work program techniques, likely infrastructure, and proposed equipment used for the activities under this Work Program are attached in Appendix 1.

## (e) Seismic line location

No Seismic acquisition is planned under this Work Program; if this changes Imperial will consult with traditional owners before these works take place.

Imperial may carry out rehabilitation and maintenance works on the legacy 2D seismic acquisition lines constructed under previous work programs.

## (f) Drilling and Hydraulic Fracturing materials

Full details regarding the composition of any fluids and solids proposed for use in drilling any well or any Hydraulic Fracturing to be carried out under this Work Program are provided in Imperial's EMP IMP5, which will be provided to NLC at lodgement to the regulator.

Imperial will not use benzene, toluene, ethyl benzene or xylene in any fluids used in hydraulic fracturing.

## (g) Environmental Impact

The likely Environmental Impact of any activity and any proposals to minimise such impact is described in Imperial's Environmental Management Plan IMP5, which will be provided to the NLC at time of lodgement to the regulator.



## (h) Access

The access to the Work Program area is via the Carpentaria Highway, approximately 202km East of the Stuart Highway intersection, and 60km West of Cape Crawford. The Carpentaria Highway has a 100km/h posted speed limit in the vicinity of the project and is generally a two-way road with a single lane sealed strip, the balance of the road width is unsealed. The Carpentaria Highway is currently undergoing a major road upgrade between the Work Program area and the Stuart Highway, which will likely continue through the duration of this Work Program. Access from the Carpentaria Highway to the Work Program area is via two tee intersections as shown in Figure 1. Imperial has and will continue to design and construct the internal access tracks so that equipment and personnel in field movements avoid using public roads as much as practicable.

The majority of equipment to be utilised for the activities carried out under this Work Program will mobilise to site from Queensland or South Australia. Materials to be utilised for the activities carried out under this Work Program will mainly mobilise to site from Darwin, Queensland, or South Australia.

Airborne access to site will utilise existing airstrips and is likely to be less than five planes per week.

The traffic forecasts to support the activities carried out under this Work Program have been split into the following sections and tables for clarity:

- Facilities establishment related traffic - Table 2
- Drilling and Hydraulic Fracturing equipment and services mobilisation traffic - Table 3
- Drilling and Hydraulic Fracturing materials delivery related traffic - Table 4
- Ongoing operations traffic - Table 5.



Work Program

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 Facilities establishment traffic
 

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Facilities establishment is made up of the following subsections:

- Water/wastewater facilities establishment
- Compressor station establishment
- Flowline network establishment
- Solar farm establishment.

**Water/wastewater facilities establishment**

There will be approximately 20 truckloads of materials to establish the water/wastewater facilities, plus five truckloads of equipment to install the tanks.

**Compressor station establishment**

There will be approximately 80 truckloads of materials to establish the compressor station, plus 10 truckloads of equipment to construct the compressor station.

**Flowline network establishment**

There will be approximately 200 truckloads of materials to establish the flowline network, plus 10 truckloads of equipment to install the flowlines.

**Solar farm establishment**

There will be approximately 100 truckloads of materials to establish the solar farm, plus 10 truckloads of equipment to construct the solar farm.

**Table 2: Facilities establishment traffic**

Activity	Total Loads	Truck Movements per week during activity
Civil construction mobilisation	10	10
Water/wastewater tank delivery	20	5
Compressor station delivery	80	10
Flowline construction mobilisation	10	10
Flowline material delivery	200	10
Solar Farm construction mobilisation	100	10
Solar Farm construction material delivery	10	10
Fuel delivery	12	1
Rubbish and waste removal	12	1



## Work Program

## Drilling and Hydraulic Fracturing equipment and services mobilisation traffic

The peak maximum anticipated traffic movements associated with equipment and services to be used for drilling and hydraulic fracturing under this Work Program will be for the mobilisation and demobilisation of the equipment "Spreads" (the term used to describe the various trucks and equipment needed) for drilling and hydraulic fracturing activities. This will peak at approximately 30 vehicles per day, with the likely duration of the mobilisations and demobilisations being approximately five days each at the start and end of each drilling or HF campaign.

The peak maximum anticipated traffic movements of civil construction, completions and workover equipment are anticipated to be minor, with a peak of 15 vehicle movements for several days during equipment mobilisation and demobilisation.

**Table 3: Drilling and Hydraulic Fracturing equipment and services traffic**

Activity	Total Loads (per well)	Truck Movements per week during activity
Drilling rig mobilisation	30	30
Completions rig mobilisation	10	10
HF spread mobilisation	20	20

## Drilling and Hydraulic Fracturing materials delivery related traffic

There will be 30-50 truckloads per well to each wellpad required to transport drilling fluids, casing, cement, fuel, etc. for drilling activities.

There will be 150 - 200 truckloads per well to each wellpad required for hydraulic fracturing proppant, chemicals fuel, etc. for hydraulic fracturing activities.

There will be no dominant traffic flow direction for the program's supplies delivery, with traffic likely to be roughly split between north (from Darwin) and south (from Queensland and South Australia).

There will be a daily commute by 4WD to mobilise and demobilise Civil Construction crews from Cape Crawford to the project area for the duration of those activities.

**Table 4: Estimated operational trucking requirements.**

Activity	Total Loads (per well)	Truck Movements per week during activity
Drilling materials delivery	50	10
HF materials delivery	200	80
Food delivery	12	1
Rubbish and waste removal	12	1
Potable water delivery	24	2
Fuel delivery	12	1



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#### Work Program

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#### Ongoing operations traffic

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Average daily traffic during the remainder of the Work Program is likely to be two to three heavy vehicle movements per month for supplies and two to three light vehicle movements per week.

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#### Roadworks and construction activities.

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The activities under this Work Program do not require the construction of any new intersections onto the Carpentaria Highway. Access tracks to be constructed include those shown in Figure 2.

Imperial does not propose to upgrade or construct any landing strips under this work program.

## (i) Campsites

Imperial will use wellpads constructed under this Work Program, and existing disturbance areas from previous Work Programs for temporary campsites to carry out civil construction, drilling, hydraulic fracturing, compressor station and water treatment facility construction, and the installation of gathering networks as required.

Imperial will construct a campsite for ongoing operations personnel, as shown in Figure 3.



Work Program

## (j) Resources obtained from within the Permit Area

For the activities under this Work Program, Imperial intends to extract water from water bores located on the Carpentaria 1 wellpad, the Carpentaria 2/3 wellpad, the Carpentaria 4 wellpad, and from water bores to be drilled on the new wellpads, under the approved water license GRF10316, (or a replacement water license).

Imperial will apply for an increase in the volume to be extracted under GRF10316 (or a replacement water license) to cover this and future work programs' requirements.

Water required for the multi-year project is anticipated to be up to 650ML. A breakdown of the water usage and its volumes is provided in Table 5.

**Table 5: Estimated Water Use for this Work Program**

Use	Scope	Total Use (ML)
<b>Civil Construction</b>	1.5 ML per wellpad	6
<b>Drilling</b>	2.5ML per well	25
<b>HF fluid make-up</b>	50ML per well (Note 1)	500
<b>Completion</b>	0.5ML per well	5
<b>Operational Activities</b>	Road and site maintenance at 1ML p/m Vehicle wash downs (0.1ML per month)	66
<b>Camp Use</b>	200L/day per person per day on site (0.5ML per Month, by 60 months)	30
<b>Totals</b>		632

Note 1. Imperial will use Flowback fluid and Produced water from hydraulic fracturing (HF) activities in subsequent HF activities to reduce this water volume where practicable; Imperial predicts that ~40% of produced HF fluid requirements will be met by this practice. The volume stated above assumes no re-use and such re-use will reduce the volumes required.

Imperial does not foresee the timber being obtained from within the Permit Area and surrounding areas.

Imperial will obtain gravel from the wellpads, and gravel pits constructed under this and existing Work Programs to build and maintain infrastructure required for this Work Program.



## (k) Proposed Contractors

Imperial is in the process of contracting and procurement for the activities to be carried out under this Work Program; the identity of the parties tendering is commercial in confidence at this time.

Imperial uses a prequalification process while selecting contractors to ensure that they have the safety systems and procedures in place to ensure all works re carried out safely and in line with Imperial's approval conditions.

## (l) Personnel

The number of personnel likely to be on site from time to time for Work Program activities , broken down into the project stages, is as follows;

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### Facilities Establishment personnel

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The initial facilities establishment stages of the Work Program will involve a relatively short duration of high-intensity activities to allow production activities to commence. The majority of the activities during the facilities management stage of the Work Program will be the construction of:

- Well pad hydrocarbon facilities
- Gas gathering network
- Compressor station
- High-pressure gas export pipeline and metering station
- Water/wastewater flowline network
- Water/wastewater facilities construction
- Water/wastewater facilities construction
- Support facilities construction

An estimate of the maximum number of people likely to be on the Production Area for the facilities establishment is shown in Table 6 below.



## Work Program

**Table 6: Estimated Maximum Number of People Likely to be on the site for Facilities Establishment**

Facilities establishment Workforce (employment and contract)	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024
Well pad hydrocarbon facilities						10	10	10				
Gas gathering network									20	20		
Compressor station					40	40	40	20	20	20	20	10
High-pressure gas export pipeline and metering station				10	10	10						
Support facilities construction					30	30						
Compressor station and support facilities civil construction			20	20	20	20						
<b>Totals</b>	0	0	20	30	100	110	50	30	40	40	20	10

## Ongoing personnel

Ongoing operations, starting at the initial facilities establishment stage completion. Unlike the initial facilities establishment stage, these ongoing operations will be ongoing for the life of the Work Program.

The ongoing field scope will consist mainly of the following:

- Compressor station operation
- Hydrocarbon well monitoring and operation
- Wastewater treatment facility operation
- Gas gathering and water/wastewater transfer infrastructure operation and maintenance.

The field operations will occur throughout the year, 24 hours a day, seven days per week.

Imperial employees will likely carry out the core field production operations. The number of Imperial employees required to carry out these ongoing production operations will likely be 4 – 10 people, depending on the size of the field operation and the number of wells online at the time.



## Work Program

There will be planned maintenance and as-required repairs carried out to support the ongoing field operations; these will include but not be limited to:

- Compressor station scheduled maintenance and as-needed repairs
- Wastewater treatment facility scheduled maintenance and as-needed repairs
- Hydrocarbon well workovers
- Road network repairs and maintenance.

Service provider companies will carry out these planned maintenance and as-needed repairs, as they will be short-duration and require specialist personnel and equipment. Imperial will program the planned maintenance activities during the local dry season where practicable.

The estimated workforce (employment and contract) to meet an indicative annual program is shown in Table 7 below.

**Table 7: Estimated Field Development and Field Operations Workforce (Employed and Contractor**

<b>Field Development and Field Operations Workforce (employment and contract)</b>	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
Drilling					40	40	40					
Hydraulic Fracturing								60	60			
Gathering network construction						20	20	20				
Civil construction				15	15	15						
Production operations	7	7	7	7	7	7	7	7	7	7	7	7
Production maintenance				10	5	5	15	5	5	10		
<b>Total</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>32</b>	<b>72</b>	<b>67</b>	<b>82</b>	<b>92</b>	<b>72</b>	<b>17</b>	<b>7</b>	<b>7</b>



## (m) Access Roads

Access roads and tracks to be used under this project are:

- Public roads, including but not limited to the Carpentaria Highway
- Imperial Constructed Access Tracks, as shown in Figure 2 and Figure 9.

## (n) Other activities

Imperial does not expect that there will be any other aspect of any activity that is likely to have an Environmental Impact or impact upon the traditional owners.



Work Program

Imperial O&G

2024 - 2029 EP187 Work Program

NT Exploration Permit (EP) 187

**Report Number:** EP187 2024-28 - NLC Work Program - R1  
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Work Program

Prepared for:

IMPERIAL OIL AND GAS

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## Contents

Summary .....	5
(a) Work Program Location .....	8
(b) Work Program Activities .....	17
(c) Work Program Timing .....	23
(d) Work Program Techniques, infrastructure and equipment .....	26
(e) Seismic line location .....	26
(f) Drilling and Hydraulic Fracturing materials .....	26
(g) Environmental Impact .....	26
(h) Access .....	27
Facilities establishment traffic .....	28
<b>Water/wastewater facilities establishment</b> .....	28
<b>Compressor station establishment</b> .....	28
<b>Flowline network establishment</b> .....	28
Drilling and Hydraulic Fracturing equipment and services mobilisation traffic .....	28
Drilling and Hydraulic Fracturing materials delivery related traffic .....	29
Ongoing operations traffic .....	29
Roadworks and construction activities .....	30
(i) Campsites .....	30
(j) Resources obtained from within the Permit Area .....	31
(k) Proposed Contractors .....	32
(l) Personnel .....	32
Facilities Establishment personnel .....	32
Ongoing personnel .....	33
(m) Access Roads .....	35
(n) Rehabilitation .....	36
(o) Other activities .....	36
(p) Reconnaissance activities .....	36



## List Of Figures

Figure 1: Existing infrastructure and Appraisal Agreement negotiation area.....	10
Figure 2: Location of proposed wellpads and access tracks.....	11
Figure 3: Location of proposed facilities and access tracks.....	12
Figure 4: Location of proposed wellpads and gas flowlines.....	13
Figure 5: Location of proposed wellpads and water/wastewater flowlines.....	14
Figure 6: Location of proposed wellpads and well drilling extent.....	15
Figure 7: Location of infrastructure movement areas.....	16
Figure 8: Indicative Wellpad layout.....	19
Figure 9: Indicative access track and flowline Right of Way.....	20
Figure 10: Indicative Water/Wastewater facility layout.....	21
Figure 11: Indicative Compressor Station layout.....	22
Figure 12: Indicative 2024-28 Work Program Schedule.....	24
Figure 13: Indicative 2024 Work Program Schedule.....	25

## List Of Tables

Table 1: Work Program Activities	6
Table 2: General Well Information	9
Table 3: Facilities establishment traffic	28
Table 4: Drilling and Hydraulic Fracturing equipment and services traffic	29
Table 5: Estimated operational trucking requirements.	29
Table 6: Estimated Water Use for this Work Program	31
Table 7: Estimated Maximum Number of People Likely to be on the site for Facilities Establishment	33
Table 8: Estimated Field Development and Field Operations Workforce (Employed and Contractor)	35

## Appendices

The following Appendices support this EMP:

Appendix 01 -	Work Methods for Project Activities
Appendix 02	Shapefiles for Work Program Activities



## Summary

This Work Program relates to the Petroleum Exploration permit EP187 located approximately 85 kilometres south-west of Borroloola within the Beetaloo Sub-basin and greater McArthur Basin.

Imperial proposes a multi-year Work Program in the Western flank of EP187, commencing in 2024.

This program builds on the fieldwork carried out under the previous 2019 to 2023 Work Programs.

Imperial is providing a multi-year Work Program to ensure that Imperial's full development plan, subject to current gas pipeline constraints, is communicated to the directly affected traditional owners. Imperial will further consult with the directly affected traditional owners if there are changes to the plan. Potential changes to the plan may entail altering the timing of activities between program years, and/or the movement of planned works within the movement areas, as shown in Figure 7.

Extended well testing is required to determine whether the shale gas resource identified is commercially exploitable, which would require a material amount of gas to be flared or vented to the environment. Given this, in order to reduce the environmental impacts of the flaring or venting, not to waste the gas resource unnecessarily, provide economic benefits to traditional owners, and to provide some revenue to Imperial to offset the costs involved in the extended production testing; Imperial proposes to seek the agreement of traditional owners, the NLC and the NT Minister responsible for the Petroleum Act to the use of the gas that would otherwise be flared or vented as appraisal gas which can be sold with revenues to Imperial and royalties to traditional owners and the Territory For the readability of this document, Imperial has called the agreement to be sought for the use of the gas that would otherwise be flared or vented as appraisal gas a Beneficial Use Agreement (BUA).

If Imperial can establish the commercial viability of the shale gas resource Imperial would expect to lodge an application for a production license and to seek to negotiate a production agreement with the NLC (on behalf of the traditional owners) as contemplated by the existing Exploration Agreement.

This Work Program represents a fit for purpose, cost-effective, and environmentally responsible way to progress EP187's ongoing development given the basin's geographical remoteness, an official wet season period spanning six months, and multi-agency clearances and permissions required to undertake site works.

This Work Program has been prepared having regard to clause 13 of the Exploration Deed, Exploration Permit Application 187 between Imperial Oil and Gas Pty Ltd and The Northern Land Council.



## Work Program

This Work Program seeks approval to conduct a program along the Western flank of EP187 comprising the activities in Table 1. The activities marked in the "BUA not agreed" column will be carried out if a Beneficial Use Agreement cannot be agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act. The activities marked in the "BUA agreed" column will be carried out if a Beneficial Use Agreement can be agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act.

**Table 1: Work Program Activities**

Activity	BUA not agreed	BUA agreed
Construction of up to 4 Wellpads	✓	✓
Construction of up to 30km of access tracks	✓	✓
Construction of up to 60km of water/wastewater flowlines	✓	✓
Construction of up to 60km of gas gathering flowlines generally in the same trench as water/wastewater flowlines		✓
Drilling of up to 10 new wells	✓	✓
Hydraulic Fracture of up to 10 new wells	✓	✓
Construction of wellpad facilities on up to 6 wellpads	✓	✓
Operation of up to 6 wellpads	✓	✓
Construction of a Water/wastewater facility	✓	✓
Handling, storage, treatment and re-use of Flowback water and Produced formation water	✓	✓
Drilling of up to 40 new water bores	✓	✓
Construction of a compressor station		✓
Operation of a compressor station		✓
Negotiation of Pipeline easement	✓	✓
Construction of a sales gas pipeline		✓
Clean up flaring of <30 days per well of up to 10 new wells	✓	✓
Extended Production Testing with flaring for >365 days per well of up to 10 new wells	✓	
Extended Production Testing with flaring for >365 days per well of up to 2 existing wells	✓	
Construction of an operations camp	✓	✓
Operation of an operations camp	✓	✓
Continued use of works carried out under previous Work Programs	✓	✓
Including all ancillary activities required to conduct the above works.	✓	✓

This Work Program's objective is to ensure that the activities are carried out in a manner by which the impacts and risks to traditional owners, their culture and society and to the environment will be reduced to a level that is as low a reasonably practicable (ALARP).



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Work Program

Land clearing will be required for this Work Program, including for:

- Wellpads
- Access tracks
- Gas and water/wastewater flowline Right of Ways
- Water/wastewater facility
- Campsite
- Gravel pits
- Laydown yard
- Warehouse/workshop.

Additional land clearing will be required for this Work Program if a Beneficial Use Agreement can be agreed between Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act, for;

- Compressor station and associated facilities
- Sales gas pipeline Right of Way

Imperial has engaged a consultant to carry out an archaeological survey of the proposed work area and the report for this survey will be provided to NLC when available.

## (a) Work Program Location

Imperial has selected a proposed location for the activities and a buffer to allow moving locations to reduce the on-ground impacts and allow for optimisation of sub-surface considerations in line with previous Work Programs. The proposed locations of Wellpads to be constructed for relevant activities to be carried out under this Work Program are listed in Table 2.

Maps showing the proposed locations of the activities to be carried out under this Work Program, including buffer to allow moving on-site are included as follows:

- Figure 1, showing:
  - Existing infrastructure carried out under previous work programs
  - Extent of the Appraisal Agreement negotiation area
- Figure 2, showing:
  - The proposed location of wellpads and access tracks
  - Existing infrastructure carried out under previous work programs
- Figure 3, showing:
  - The proposed location of:
    - Compressor station and associated facilities
    - Campsite
    - Water/wastewater facilities
    - Sales gas pipeline
  - Existing infrastructure carried out under previous work programs
  - The location of the Daly Waters to McArthur River Mine Gas Pipeline
- Figure 4, showing:
  - The proposed location of wellpads and gas flowlines
  - Existing infrastructure carried out under previous work programs
- Figure 5, showing:
  - The proposed location of wellpads and water/wastewater flowlines
  - Existing infrastructure carried out under previous work programs
- Figure 6, showing:
  - The proposed location of wellpads and access tracks
  - The extent of proposed lateral Drilling and Hydraulic Fracturing activities under this Work Program
  - Existing infrastructure carried out under previous work programs
- Figure 7, showing:
  - The proposed location of wellpads and access tracks
  - The extent of infrastructure movement areas to be utilised under the work program.
  - Existing infrastructure carried out under previous work programs.

Shapefiles of the proposed activities, and their relevant movement areas are provided as part of this Work Program (appendix 2).

Mapping does not have coordinates shown as the labels obscure too much detail on the maps.

**Table 2: General Well Information**

General Well Information		
Carpentaria 2/3 (Existing wellpad) (MGA94, Zone 53)	Latitude Longitude Easting Northing	S 16.70086° E 135.102344° 510911 8153533
Carpentaria 4 (Existing wellpad) (MGA94, Zone 53)	Latitude Longitude Easting Northing	S 16.858123° E 135.171868° 518308 8136132
Wellpad BA (New wellpad) (MGA94, Zone 53)	Latitude Longitude Easting Northing	S 16.727199° E 135.107884° 511500 8150620
Wellpad BB (New wellpad) (MGA94, Zone 53)	Latitude Longitude Easting Northing	S 16.714247° E 135.149216° 515907 8152050
Wellpad BC (New wellpad) (MGA94, Zone 53)	Latitude Longitude Easting Northing	S 16.928549° E 135.184301° 519625 8128340
Wellpad BD (New wellpad) (MGA94, Zone 53)	Latitude Longitude Easting Northing	S 16.824890° E 135.204896° 521830 8139805
Wellpad BD (central) (New wellpad) (MGA94, Zone 53)	Latitude Longitude Easting Northing	S 16.856118° E 135.209013° 522265 8136350

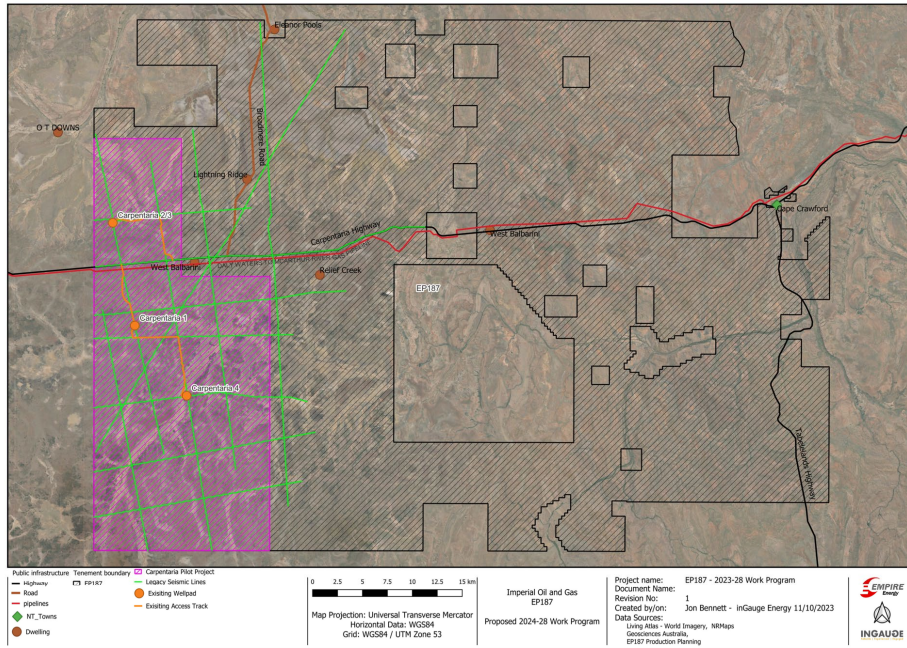


Figure 1: Existing infrastructure and Appraisal Agreement negotiation area

Work Program

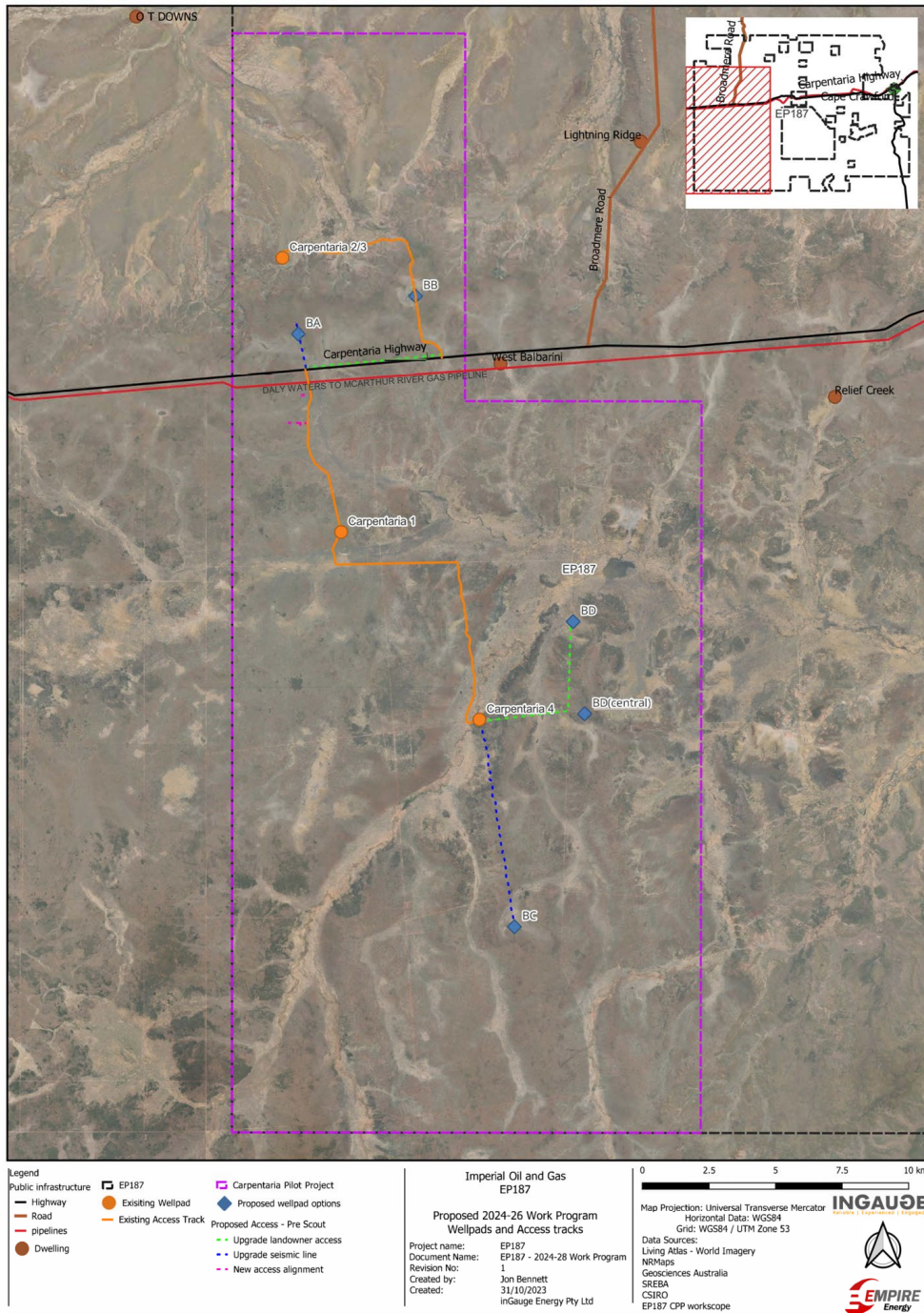


Figure 2: Location of proposed wellpads and access tracks

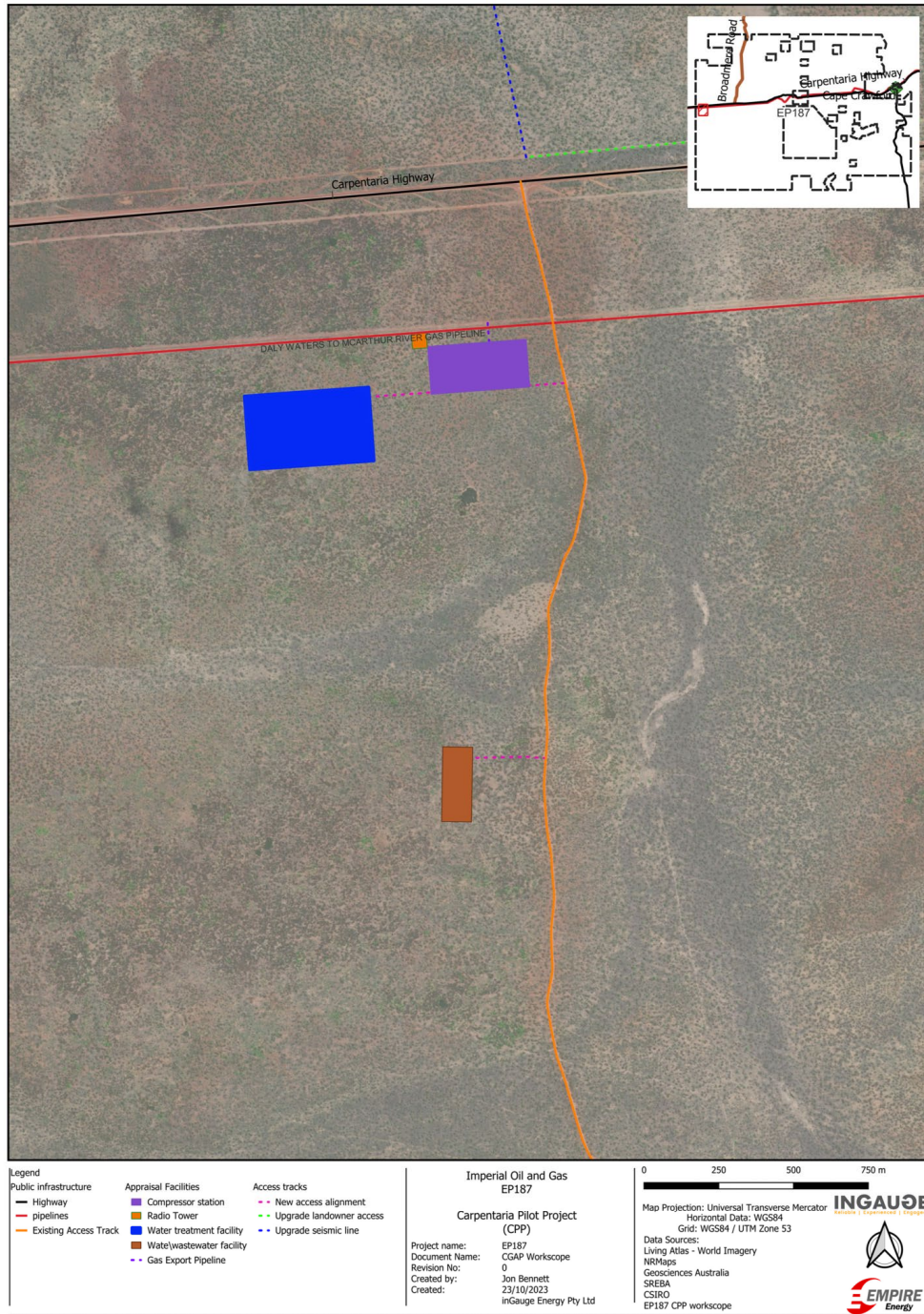


Figure 3: Location of proposed facilities and access tracks

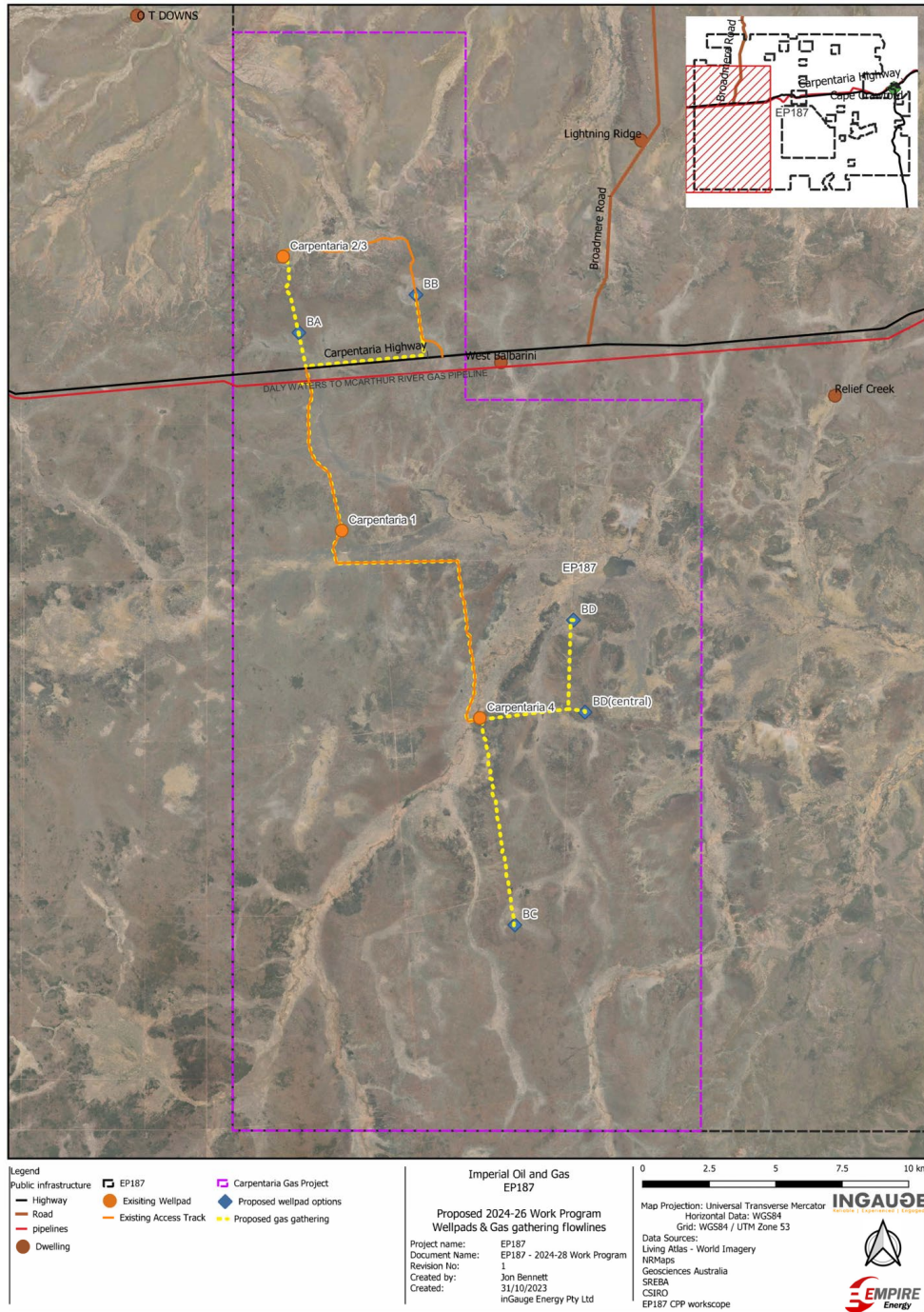


Figure 4: Location of proposed wellpads and gas flowlines



Work Program

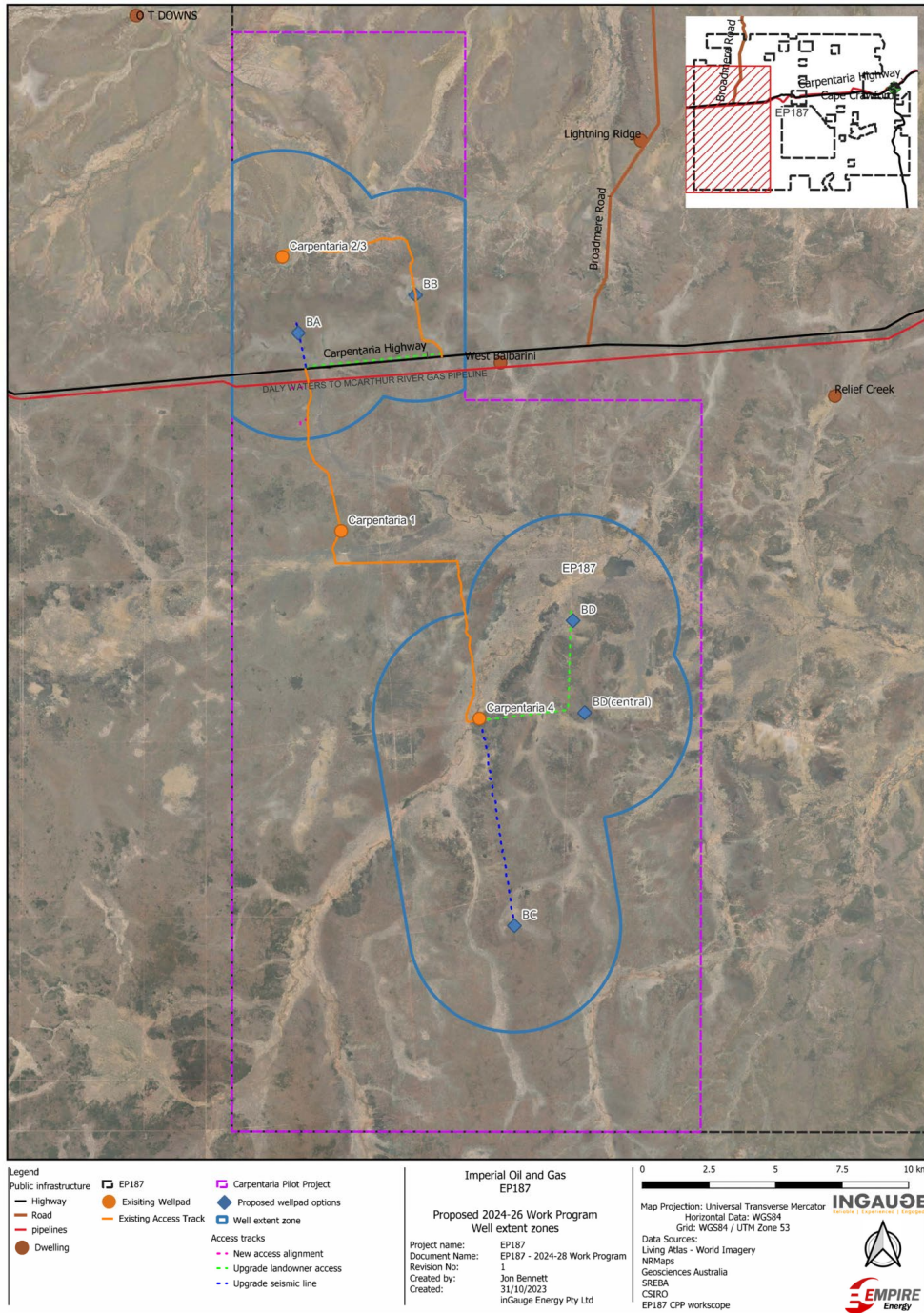


Figure 6: Location of proposed wellpads and well drilling extent

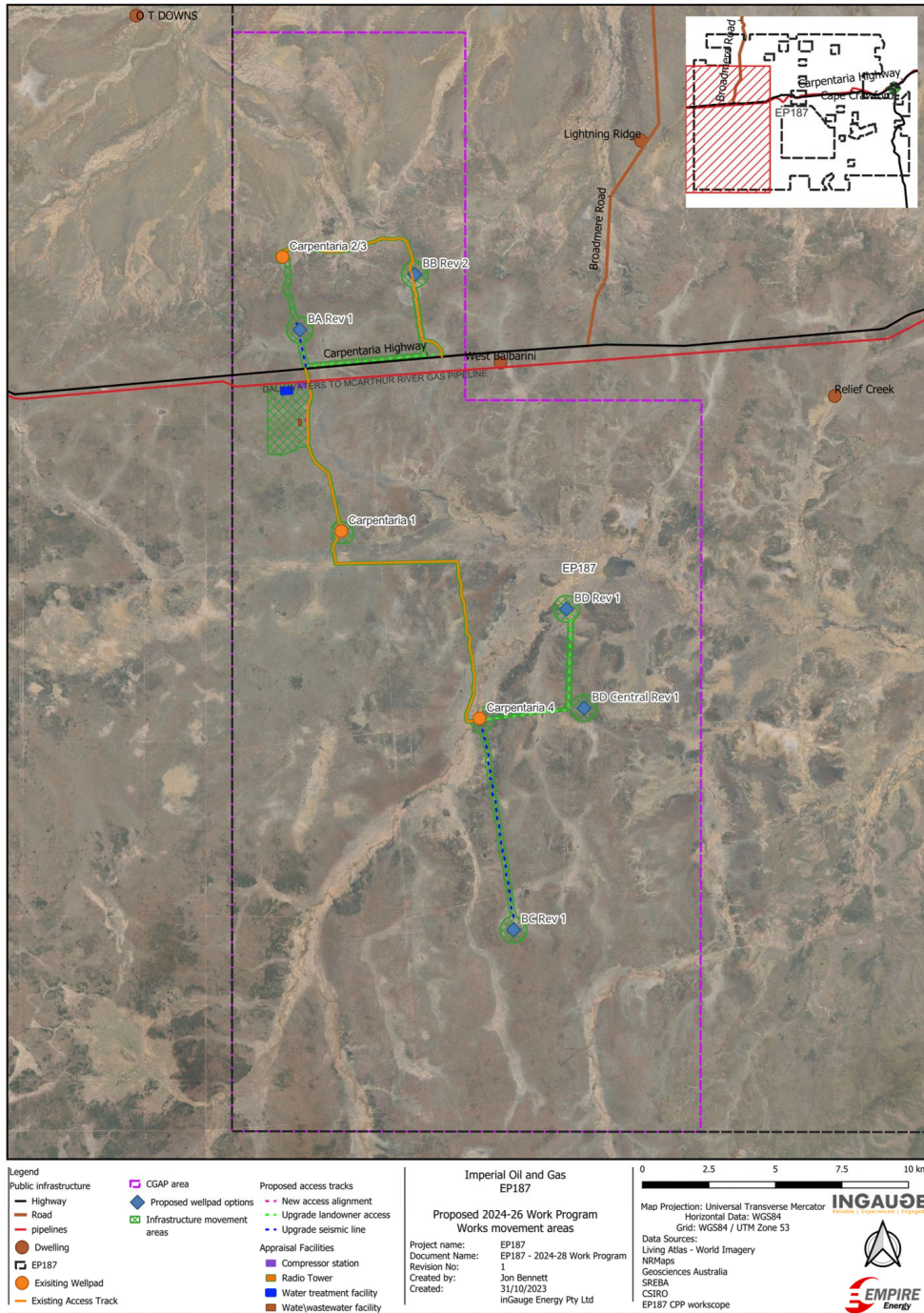


Figure 7: Location of infrastructure movement areas

## (b) Work Program Activities

The regulated activities to be carried out from 2024 through 2028 under this Work Program are listed below.

Work Program activities:

- Acquisition of 2D Seismic data:
  - No Seismic acquisition currently planned under this work program
  - Imperial may carry out maintenance and rehabilitation works on legacy 2D seismic acquisition lines constructed under previous work programs
- Extend Carpentaria 2/3 and Carpentaria 4 wellpads
- Construction of up to four new wellpads:
  - Clear up to 45 hectares for four well pads
  - Construct wellpads, (indicative layout Figure 8)
  - Establish lined ponds, (indicative layout Figure 8)
  - Construct Flowback fluid/Produced water tanks, (indicative layout Figure 8)
  - Drill water production and monitoring bores on wellpads
  - Establish Erosion and Sediment Control devices on wellpads
- Construction of up to 30km of access tracks to up to four well pads:
  - Clear up to 20 hectares for access tracks, as per Figure 2, (indicative layout Figure 9)
  - Establish Erosion and Sediment Control devices on access tracks



## Work Program

- Construction of a Water/Wastewater facility:
  - Clear up to 10 hectares for Flowback fluid/Produced water facility
  - Construct Flowback fluid/Produced water facility, (indicative layout Figure 10)
  - Establish Erosion and Sediment Control devices Flowback fluid/Produced water facility
- Construction of up to 60 km low-pressure water flowlines between well pads and water treatment facility:
  - Clear up to 60 hectares for flowline Right Of Way (ROW)
  - Install up to 60km of buried low-pressure water flowlines
  - Establish Erosion and Sediment Control devices on flowline ROW
- Drilling gas wells from the six wellpads (Carp 2/3, Carpentaria 4 and four new wellpads):
  - Drill up to 10 gas wells from the six wellpads
  - Evaluate, log, test and core above wells, including DFIT
- Hydraulic Fracture stimulation of the above wells
- Completion, connection, intervention, and workover maintenance of the above wells
- Production Testing of the above wells to flare
- Well suspension and decommissioning of the above wells
- Routine maintenance and monitoring activities
- Any other minor works ancillary of the above.

Additional Work Program activities to be carried out if a Beneficial Use Agreement is agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act, are;

- Construction of up to 60 km low-pressure gas gathering flowlines between well pads and compressor station:
  - Install up to 60 km of buried low-pressure gas gathering flowlines, (indicative layout Figure 9)
  - To be constructed on same ROW as water flowlines (indicative layout Figure 9)
- Construction of a compressor station:
  - Clear up to 10 hectares for compressor station
  - Construct compressor station (indicative layout Figure 11)
  - Establish Erosion and Sediment Control devices on compressor station site
- Construction up to 1.5km of a sales gas pipeline from the compressor station to the existing Daly Waters to McArthur River Mine Gas Pipeline:
  - Clear up to 3 hectares for sales gas pipeline
  - Install up to 2.5km of high pressure buried gas pipeline as per Figure 2
  - Establish Erosion and Sediment Control devices on pipeline Right of Way
- Production Testing of the above wells to sales
- Gas production of the above wells
- Sale of gas from the above wells

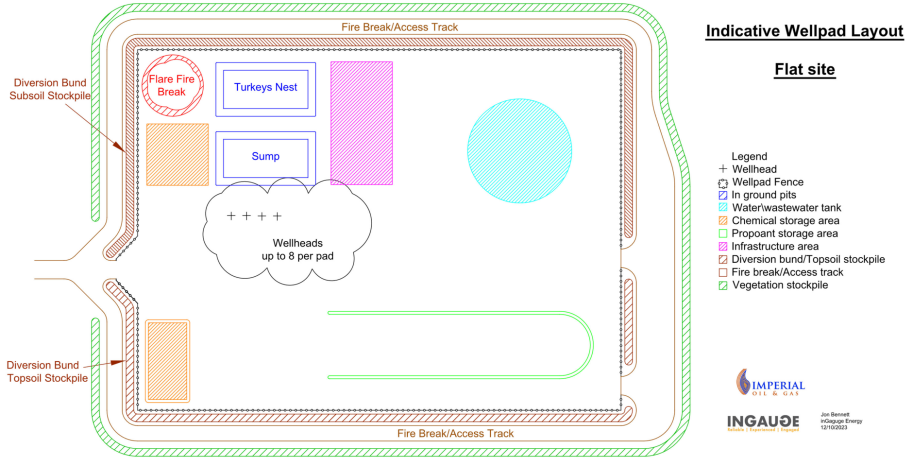


Figure 8: Indicative Wellpad layout

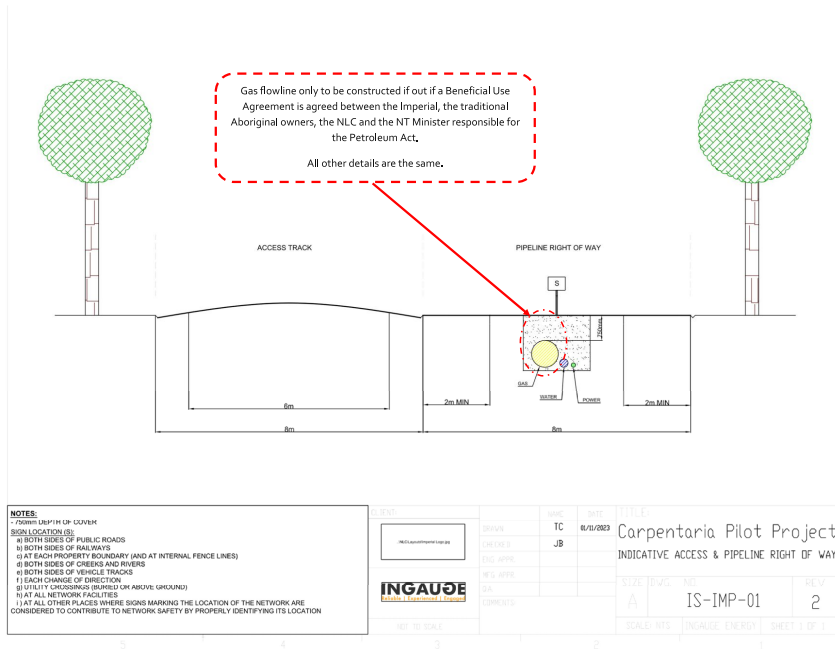


Figure 9: Indicative access track and flowline Right of Way

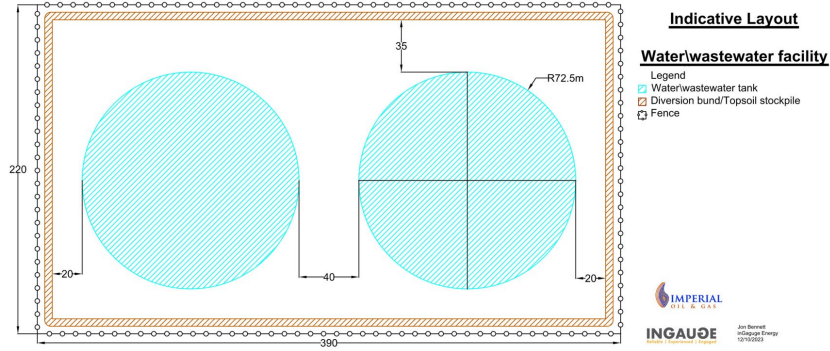


Figure 10: Indicative Water/Wastewater facility layout

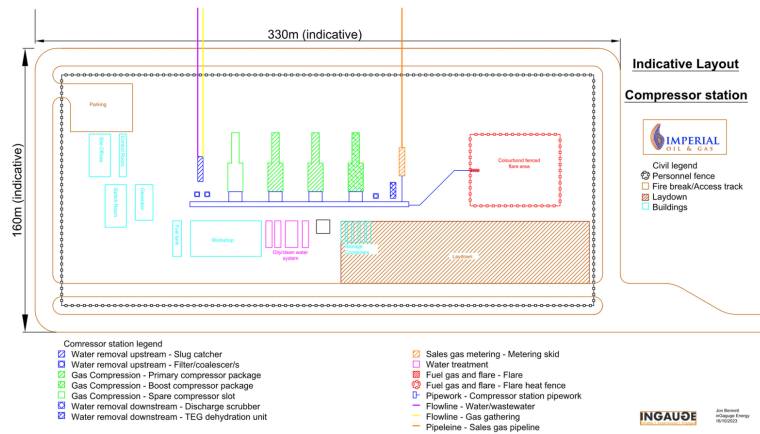


Figure 11: Indicative Compressor Station layout



## (c) Work Program Timing

An indicative project schedule, including estimated start dates and durations of regulated activities, is provided in Figure 12 below. A more detailed view of the first 12 month's indicative project schedule, including estimated start dates and durations of regulated activities, is provided in Figure 13 below. The actual timing of the work program activities outlined below may be earlier or later than indicated.

Work Program

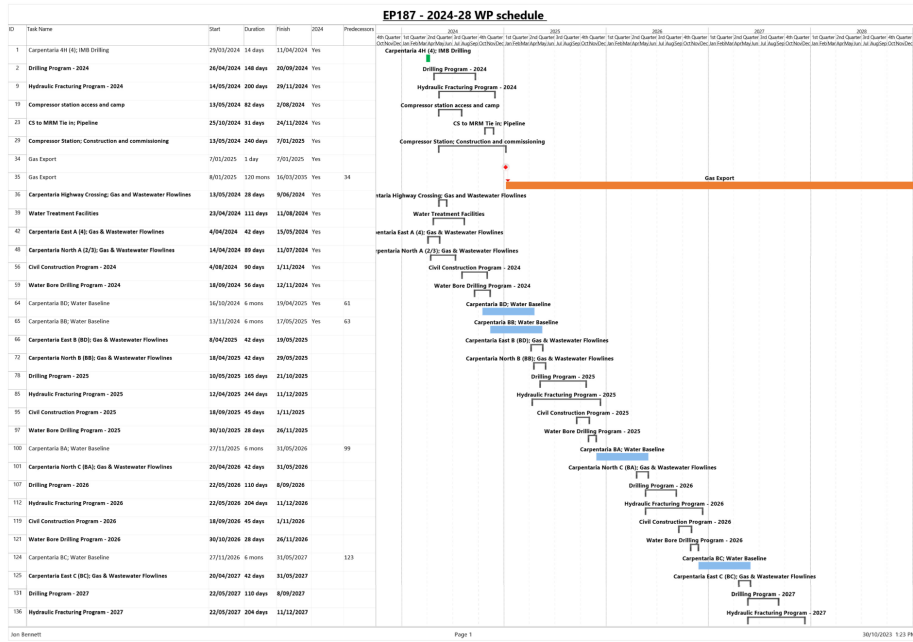


Figure 12: Indicative 2024-28 Work Program Schedule

Ref: EMP IMP3.3 Imperial O&G 2024 Carpenteria 3 Program

Work Program

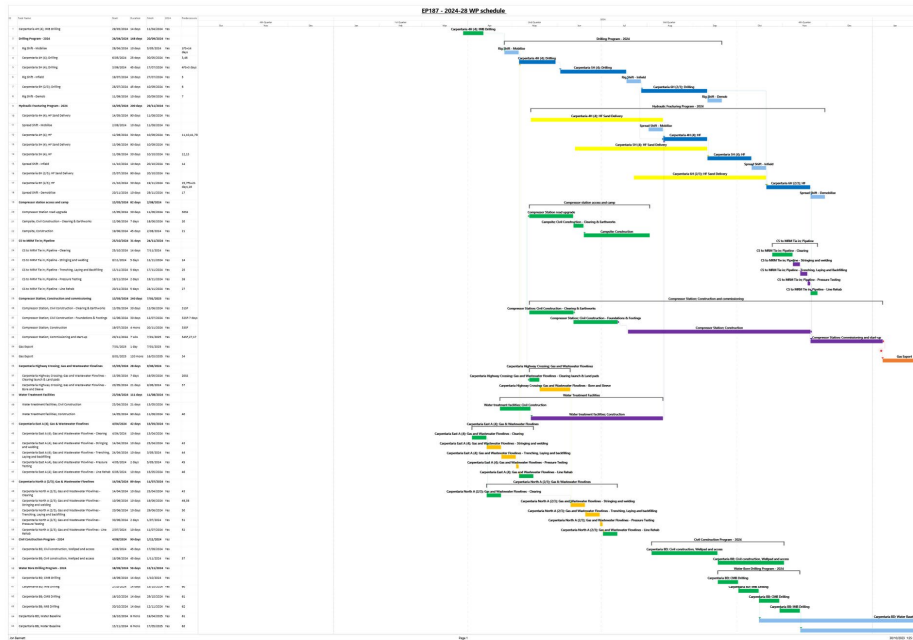


Figure 13: Indicative 2024 Work Program Schedule

Ref: EMP IMP3.3 Imperial O&G 2024 Carpenteria 3 Program



## (d) Work Program Techniques, infrastructure and equipment

The work program techniques, likely infrastructure, and proposed equipment used for the activities under this Work Program are attached in Appendix 1.

## (e) Seismic line location

No Seismic acquisition is planned under this Work Program; if this changes Imperial will consult with traditional owners before these works take place.

Imperial may carry out rehabilitation and maintenance works on the legacy 2D seismic acquisition lines constructed under previous work programs.

## (f) Drilling and Hydraulic Fracturing materials

Full details regarding the composition of any fluids and solids proposed for use in drilling any well or any Hydraulic Fracturing to be carried out under this Work Program are provided in Imperial's EMP IMP5, which will be provided to NLC at lodgement to the regulator.

Imperial will not use benzene, toluene, ethyl benzene or xylene in any fluids used in hydraulic fracturing.

## (g) Environmental Impact

The likely Environmental Impact of any activity and any proposals to minimise such impact is described in Imperial's Environmental Management Plan IMP5, which will be provided to the NLC by 20 November 2023 for feedback before lodgement to the regulator.



## (h) Access

The access to the Work Program area is via the Carpentaria Highway, approximately 202km East of the Stuart Highway intersection, and 60km West of Cape Crawford. The Carpentaria Highway has a 100km/h posted speed limit in the vicinity of the project and is generally a two-way road with a single lane sealed strip, the balance of the road width is unsealed. The Carpentaria Highway is currently undergoing a major road upgrade between the Work Program area and the Stuart Highway, which will likely continue through the duration of this Work Program. Access from the Carpentaria Highway to the Work Program area is via two tee intersections as shown in Figure 1. Imperial has and will continue to design and construct the internal access tracks so that equipment and personnel in field movements avoid using public roads as much as practicable.

The majority of equipment to be utilised for the activities carried out under this Work Program will mobilise to site from Queensland or South Australia. Materials to be utilised for the activities carried out under this Work Program will mainly mobilise to site from Darwin, Queensland, or South Australia.

Airborne access to site will utilise existing airstrips and is likely to be less than five planes per week.

The traffic forecasts to support the activities carried out under this Work Program have been split into the following sections and tables for clarity:

- Facilities establishment related traffic - Table 3
- Drilling and Hydraulic Fracturing equipment and services mobilisation traffic - Table 4
- Drilling and Hydraulic Fracturing materials delivery related traffic - Table 5
- Ongoing operations traffic - Table 6.



## Work Program

## Facilities establishment traffic

Facilities establishment is made up of the following subsections:

- Water/wastewater facilities establishment
- Flowline network establishment
- Compressor station establishment

**Water/wastewater facilities establishment**

There will be approximately 20 truckloads of materials to establish the water/wastewater facilities, plus five truckloads of equipment to install the tanks.

**Compressor station establishment**

There will be approximately 80 truckloads of materials to establish the compressor station, plus 10 truckloads of equipment to construct the compressor station if a Beneficial Use Agreement is agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act. This activity is highlighted in blue in the table below.

**Flowline network establishment**

There will be approximately 200 truckloads of materials to establish the flowline network, plus 10 truckloads of equipment to install the flowlines.

**Table 3: Facilities establishment traffic**

Activity	Total Loads	Truck Movements per week during activity
Civil construction mobilisation	10	10
Water/wastewater tank delivery	20	5
Flowline construction mobilisation	10	10
Flowline material delivery	200	10
Fuel delivery	12	1
Rubbish and waste removal	12	1
Compressor station delivery	80	10

## Drilling and Hydraulic Fracturing equipment and services mobilisation traffic

The peak maximum anticipated traffic movements associated with equipment and services to be used for drilling and hydraulic fracturing under this Work Program will be for the mobilisation and demobilisation of the equipment "Spreads" (the term used to describe the various trucks and equipment needed) for drilling and hydraulic fracturing activities. This will peak at approximately 30



## Work Program

vehicles per day, with the likely duration of the mobilisations and demobilisations being approximately five days each at the start and end of each drilling or HF campaign.

The peak maximum anticipated traffic movements of civil construction, completions and workover equipment are anticipated to be minor, with a peak of 15 vehicle movements for several days during equipment mobilisation and demobilisation.

**Table 4: Drilling and Hydraulic Fracturing equipment and services traffic**

Activity	Total Loads (per well)	Truck Movements per week during activity
Drilling rig mobilisation	30	30
Completions rig mobilisation	10	10
HF spread mobilisation	20	20

#### Drilling and Hydraulic Fracturing materials delivery related traffic

There will be 30-50 truckloads per well to each wellpad required to transport drilling fluids, casing, cement, fuel, etc. for drilling activities.

There will be 200 - 250 truckloads per well to each wellpad required for hydraulic fracturing proppant, chemicals fuel, etc. for hydraulic fracturing activities.

There will be no dominant traffic flow direction for the program's supplies delivery, with traffic likely to be roughly split between north (from Darwin) and south (from Queensland and South Australia).

There will be a daily commute by 4WD to mobilise and demobilise Civil Construction crews from Cape Crawford to the project area for the duration of those activities.

**Table 5: Estimated operational trucking requirements.**

Activity	Total Loads (per well)	Truck Movements per week during activity
Drilling materials delivery	50	10
HF materials delivery	250	80
Food delivery	12	1
Rubbish and waste removal	12	1
Potable water delivery	24	2
Fuel delivery	12	1

#### Ongoing operations traffic

Average daily traffic during the remainder of the Work Program is likely to be two to three heavy vehicle movements per month for supplies and two to three light vehicle movements per week.



## Work Program

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**Roadworks and construction activities.**

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The activities under this Work Program do not require the construction of any new intersections onto the Carpentaria Highway. Access tracks to be constructed include those shown in Figure 2.

Imperial does not propose to upgrade or construct any landing strips under this work program.

## (i) Campsites

Imperial will use wellpads constructed under this Work Program, and existing disturbance areas from previous Work Programs for temporary campsites to carry out civil construction, drilling, hydraulic fracturing, compressor station and water treatment facility construction, and the installation of gathering networks as required.

Imperial will construct a campsite for ongoing operations personnel, as shown in Figure 3.



Work Program

## (j) Resources obtained from within the Permit Area

For the activities under this Work Program, Imperial intends to extract water from water bores located on the Carpentaria 1 wellpad, the Carpentaria 2/3 wellpad, the Carpentaria 4 wellpad, and from water bores to be drilled on the new wellpads, under the approved water license GRF10316, (or a replacement water license).

Imperial will apply for an increase in the volume to be extracted under GRF10316 (or a replacement water license) to cover this and future work programs' requirements.

Water required for the multi-year project is anticipated to be up to 650ML. A breakdown of the water usage and its volumes is provided in Table 6.

**Table 6: Estimated Water Use for this Work Program**

Use	Scope	Total Use (ML)
Civil Construction	1.5 ML per wellpad	6
Drilling	2.5ML per well	25
HF fluid make-up	80ML per well (Note 1)	800
Completion	0.5ML per well	5
Operational Activities	Road and site maintenance at 1ML p/m	66
	Vehicle wash downs (0.1ML per month)	
Camp Use	200L/day per person per day on site (0.5ML per Month, by 60 months)	30
<b>Totals</b>		<b>932</b>

Note 1. Imperial will use Flowback fluid and Produced water from hydraulic fracturing (HF) activities in subsequent HF activities to reduce this water volume where practicable; Imperial predicts that ~40% of produced HF fluid requirements will be met by this practice. The volume stated above assumes no re-use and such re-use will reduce the volumes required.

Imperial does not foresee the timber being obtained from within the Permit Area and surrounding areas.

Imperial will obtain gravel from the wellpads, and gravel pits constructed under this and existing Work Programs to build and maintain infrastructure required for this Work Program.



Work Program

## (k) Proposed Contractors

Imperial is in the process of contracting and procurement for the activities to be carried out under this Work Program; the identity of the parties tendering is commercial in confidence at this time.

Imperial uses a prequalification process while selecting contractors to ensure that they have the safety systems and procedures in place to ensure all works are carried out safely and in line with Imperial's approval conditions.

## (l) Personnel

The number of personnel likely to be on site from time to time for Work Program activities, broken down into the project stages, is as follows;

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### Facilities Establishment personnel

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The initial facilities establishment stages of the Work Program will involve a relatively short duration of high-intensity activities to allow appraisal activities to commence. The majority of the activities during the facilities establishment stage of the Work Program will be the construction of:

- Well pad hydrocarbon facilities
- Water/wastewater flowline network
- Water/wastewater facilities construction
- Water/wastewater facilities construction
- Support facilities construction

The additional activities during the facilities establishment stage of the Work Program if a Beneficial Use Agreement is agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act will be the construction of:

- Gas gathering network
- Compressor station
- High-pressure gas export pipeline and metering station



## Work Program

An estimate of the maximum number of people likely to be on the Appraisal Area for the facilities establishment is shown in the Table 7 below. The additional activities during the facilities establishment stage of the Work Program if a Beneficial Use Agreement is agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act are highlighted blue.

Table 7: Estimated Maximum Number of People Likely to be on the site for Facilities Establishment

Facilities establishment Workforce (employment and contract)	Jan 2024	Feb 2024	Mar 2024	Apr 2024	May 2024	Jun 2024	Jul 2024	Aug 2024	Sep 2024	Oct 2024	Nov 2024	Dec 2024
Well pad hydrocarbon facilities						10	10	10				
Gas gathering network									20	20		
Support facilities construction					30	30						
Compressor station					40	40	40	20	20	20	20	10
High-pressure gas export pipeline and metering station				10	10	10						
Compressor station and support facilities civil construction			20	20	20	20						
<b>Totals</b>	0	0	20	30	100	110	50	30	40	40	20	10

## Ongoing personnel

Ongoing operations, starting at the initial facilities establishment stage completion. Unlike the initial facilities establishment stage, these ongoing operations will be ongoing for the life of the Work Program.

The ongoing field scope will consist mainly of the following:

- Hydrocarbon well monitoring and operation
- Wastewater treatment facility operation
- Flowline and associated infrastructure operation and maintenance.

The additional ongoing field activities if a Beneficial Use Agreement is agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act will be:



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Work Program

- Compressor station operation

The field operations will occur throughout the year, 24 hours a day, seven days per week.

Imperial employees will likely carry out the core field appraisal operations. The number of Imperial employees required to carry out these ongoing appraisal operations will likely be 4 – 10 people, depending on the size of the field operation and the number of wells online at the time.

There will be planned maintenance and as-required repairs carried out to support the ongoing field operations; these will include but not be limited to:

- Wastewater treatment facility scheduled maintenance and as-needed repairs
- Hydrocarbon well workovers
- Road network repairs and maintenance.

The additional planned maintenance and as-required repairs carried out to support the ongoing field operations activities if a Beneficial Use Agreement is agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act will include but not be limited to:

- Compressor station scheduled maintenance and as-needed repairs

Service provider companies will carry out these planned maintenance and as-needed repairs, as they will be short-duration and require specialist personnel and equipment. Imperial will program the planned maintenance activities during the local dry season where practicable.

The estimated workforce (employment and contract) to meet an indicative annual program is shown in Table 8 below. The extra estimated workforce (employment and contract) if a Beneficial Use Agreement is agreed between the Imperial, the traditional Aboriginal owners, the NLC and the NT Minister responsible for the Petroleum Act is highlighted in blue.

**Table 8: Estimated Field Development and Field Operations Workforce (Employed and Contractor**

Field Development and Field Operations Workforce (employment and contract)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Drilling					40	40	40					
Hydraulic Fracturing								60	60			
Gathering network construction						20	20	20				
Civil construction				15	15	15						
Appraisal operations	2	2	2	2	2	2	2	2	2	2	2	2
Appraisal maintenance				5	2	2	5	2	2	5		
Appraisal operations	5	5	5	5	5	5	5	5	5	5	5	5
Appraisal maintenance				5	3	2	10	3	3	5		
<b>Total</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>32</b>	<b>72</b>	<b>67</b>	<b>82</b>	<b>92</b>	<b>72</b>	<b>17</b>	<b>7</b>	<b>7</b>

## (m) Access Roads

Access roads and tracks to be used under this project are:

- Public roads, including but not limited to the Carpentaria Highway
- Imperial Constructed Access Tracks, as shown in Figure 2 and Figure 9.



## (n) Rehabilitation

Imperial will carry out rehabilitation activities on the Appraisal Area in line with the requirements of the Code of Practice: Onshore Petroleum Activities in the Northern Territory.

Imperial will carry out progressive rehabilitation of significantly disturbed land which is no longer required for the ongoing conduct of petroleum activities or future petroleum activities. This rehabilitation will commence as soon as practicable following the disturbed land becoming no longer required for the ongoing conduct of petroleum activities or future petroleum activities.

Imperial will monitor rehabilitation progress annually and perform maintenance works as required until a section of significantly disturbed land is rehabilitated per the rehabilitation plan.

Imperial will compile EMPs for approval by the Regulator as part of the proposed activities and part of an EMP's requirements is a rehabilitation plan which will cover the requirements for successful rehabilitation, as well as monitoring and reporting and the ability to relinquish and transfer assets to landholders.

## (o) Other activities

Imperial does not expect that there will be any other aspect of any activity that is likely to have an Environmental Impact or impact upon the traditional owners.

## (p) Reconnaissance activities

Imperial is carrying out reconnaissance activities starting 24 October 2023 to support the activities to be carried out under this Work Program. Imperial does not currently envisage the need for future reconnaissance activities to support this Work Program. If the requirement for future reconnaissance is identified, imperial will work with the NLC as soon as the need is known to facilitate these activities.

**4.2.2 2023.11.01 | Work Program Appendix - Work Methods for Project Activities**


Project Activities



# Imperial Oil & Gas A Pty Ltd

## 2024-28 Work Program

### Carpentaria Gas Project

## Appendix 01

### Work Methods for Project Activities

Rev.	Description	Date	Authors	Reviewer	Approved
1	Updated	20/12/2022	Vicky Cartwright Charles Dack Jon Bennett	Jon Bennet	Charles Dack
2	Issued for Re-submission	22/06/2023	Vicky Cartwright	Nick Fraser	Trent Smith
3	Updated for new scope	31/10/2023	Jon Bennett	Kelvin Wuttke Luke Jordan Tony Horvat	

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## Table of Contents

<b>Work Methods for Project Activities .....</b>	<b>1</b>
<b>Table of Contents .....</b>	<b>2</b>
List of Tables .....	5
List of Figures .....	5
<b>1 Access Track Construction .....</b>	<b>7</b>
1.1 Overview .....	7
1.2 Methodology .....	7
<b>2 Flowline Construction, Operation, and Decommissioning .....</b>	<b>10</b>
2.1 Overview .....	10
2.2 Methodology .....	11
2.2.1 Right of Way Clearing & Grubbing .....	11
2.2.2 Pipe Stringing .....	11
2.2.3 Pipe Jointing .....	12
2.2.4 Trenching and Bedding .....	16
2.2.5 Placing of Pipe into the Trench .....	16
2.2.6 Backing and Compaction .....	16
2.2.7 Pressure/Leak Testing .....	17
2.2.8 Pipe Survey, Location, and Marker-Signposting .....	20
2.2.9 Commissioning .....	21
2.2.10 ROW Reinstatement .....	22
2.2.11 ROW Inspection Maintenance and Monitoring .....	22
2.2.12 Materials Selection .....	22
2.2.13 Watercourse Crossing .....	23
2.2.14 High Point Vents, Low Point Drains and in Field Valves .....	25
<b>3 Well Pad Construction .....</b>	<b>26</b>
3.1 Overview .....	26
3.2 Methodology .....	26
3.3 Cut and Fill Well Pad Methodology .....	26

3.3.1	Vegetation Stockpiling and Dirty Water Filtration .....	27
3.3.2	Topsoil and Clean Water Diversion.....	27
3.3.3	Levelling the Well Pad.....	27
3.3.4	Well Pad Drainage.....	27
3.3.5	Sediment Control.....	27
<b>4</b>	<b>Water Bores .....</b>	<b>30</b>
4.1	Overview .....	30
4.2	Camps and Campsites .....	30
<b>5</b>	<b>Gravel Pits.....</b>	<b>31</b>
5.1	Overview .....	31
<b>6</b>	<b>Drilling.....</b>	<b>33</b>
6.1	Overview .....	33
6.2	Surface Hole Section .....	33
6.3	Intermediate Hole Section .....	34
6.4	Horizontal Production Hole Sections .....	34
6.5	Collision Avoidance on Multi-Well Pads.....	34
<b>7</b>	<b>Diagnostic Fracture Injection Test (DFIT) .....</b>	<b>37</b>
7.1	Overview .....	37
<b>8</b>	<b>Perforation.....</b>	<b>38</b>
8.1	Overview .....	38
<b>9</b>	<b>Hydraulic Fracturing.....</b>	<b>39</b>
9.1	Overview .....	39
9.2	Hydraulic Fracture Stages.....	41
9.3	Proppant and Chemical Additives.....	45
9.3.1	Tracers .....	45
9.4	HF Equipment.....	46
9.4.1	Wellhead.....	46
9.4.2	Sand Trailer Units .....	47
9.4.3	Blender Units .....	47
9.4.4	High-Pressure Pumps.....	47
9.4.5	Control and Data Acquisition Unit.....	47
<b>10</b>	<b>Completion .....</b>	<b>48</b>
10.1	Overview .....	48